INDIA RUBBER WORLD
FOUNDED 1889
CAOUTCHOUC
GUTTA-PERCHA
Reg. U.S. Pat. Off.
Reg. United Kingdom.

Published on the 1st of each month by

THE INDIA RUBBER PUBLISHING CO.

No. 25 West 45th Street, New York

Telephone—Bryant 2576

CABLE ADDRESS: IRWORLD, NEW YORK

Member of the National Publishers' Association

HENRY C. PEARSON, F.R.G.S., Editor

Vol. 67 NOVEMBER 1, 1922 No. 2

SUBSCRIPTION: $3.00 per year, $1.75 for six months, postpaid, for the United States and dependencies and Mexico. To the Dominion of Canada and all other countries, $3.50 (or equivalent funds) per year, postpaid.

ADVERTISING: Rates will be made on application.

REMITTANCES: Should always be made by bank draft, Post Office or Express Money Order on New York, payable to THE INDIA RUBBER PUBLISHING COMPANY. Remittances for foreign subscriptions should be sent by International Postal Order, payable as above.

Selling Traditions Overturned

THE more salesmen a manufacturer has, the more goods he sells; the oftener he turns over his working capital, the greater net profits on his investment,—perhaps. The truth of this widely-accepted, time-honored principle in merchandizing is being seriously questioned in the rubber trade. When industrial conditions took a turn for the better a few months ago wonder was expressed why many of the big tire-making concerns came back so slowly, while a few made a conspicuously quick revival. The secret is out apparently. Those who recuperated slowly had been embarrassed with sales agents who were general merchandizers; while those who recovered swiftly had pursued the policy of dealing with no tire merchants who did not confine themselves to selling but one brand of tubes and casings.

One company thus situated, during nearly all the depression had been operating at almost capacity, and is now perfecting plans for doubling its output. The company's officials ascribe its success to the fact that it does not distribute through agents who merely handle tires but through those who buy and sell its tires exclusively and who have been chosen for financial strength as well as salesmanship. It is assumed that salesmen thus protected by a factory in a fair-sized territory work with a will and that they concentrate instead of scatter their fire. Their affections are not divided. There is but one tire that they care to recommend. They know, too, that if their sales do not measure up to a fair standard a good field will be turned over to some one who can score a fair average.

While many tire-makers, mistakenly scenting a boom, were eagerly taking extravagant and practically duplicate orders from dealers who carried various brands, just before the breakdown in prices and production, and were caught with excessive inventories in warehouses and branches, not to mention unnecessary production space, the company mentioned decided to accept no orders even from its own dealers for more than normal amount. When the slump came they easily cleaned their floors, while the sellers of many brands were overloaded, a condition which even sharp price-cutting was slow to relieve. The exclusive dealers were sending in repeat orders long before the many-brand men were able to shift their burden.

We have it on eminent authority that "No man can serve two masters," and this is surely the case where they are rivals in trade. At any rate the experience cited above is valuable to the entire rubber trade. Were all the leaders to pursue a similar course the evils of price-cutting, overproduction, labor turnover, and impaired credits, would be greatly lessened. Stabilization might be almost achieved.

Rubber Antiskids for Safety

STRANGELY enough, little or no stress seems to have been put upon one factor that has a decided bearing on the question of safety on the highways; and that is the use of rubber antiskid devices on tires of all types. Statistics show that fully 90 per cent of motor car accidents are due directly or indirectly to skidding. It is perhaps the greatest danger that besets the motorist and one of the chief perils to pedestrians crossing highways. A safety campaign should emphasize the importance of automobile drivers taking not only reasonable precautions in operating their cars with regard to general traffic, but employing as far as possible real antiskid tires.

Of course a tread may be ideally designed to guard against skidding, but if the tire be not well inflated the efficiency of the sure-grip tread is well nigh lost. Other things being equal, the more road contact there is the

more is the tendency to side slip because the less will be the specific pressure upon the road at any point.

More Bicycles, More Single Tube Tires

SOME well-informed folks seem to think the bicycle is coming back. Further, that it will not be long before those who do not motorcycle or automobile will cycle. The world is bound to go awheel in some fashion. At the recent 16th Annual National Convention of the Cycle Trades Association the prediction was confidently made that the bicycle is about to come into its own again after being partially eclipsed by the more spectacular motor car. It was said that there is and always will be room for it (although the thoroughfares are pretty well crowded just now with self-propelled vehicles); that to a greater degree than ever people are realizing that they need some such exercise as that afforded by bicycling; and that a great reduction in the prices of the two-wheeled vehicles is imminent.

President H. M. Huffman of the Cycle Tradesmen of Dayton, Ohio, is quoted as saying that "five times as many bicycles will be sold this year as there were last year." It is intimated that the campaign for renewing interest is only beginning to get under way. All this is interesting to the tire manufacturer. It does not imply any slackening in the demand for motor tubes and casings, but it may mean a large amount of new business in the production of single tube tires, and for the making of which the industry is better prepared than ever.

Pneumatic Truck Tires Increase in Number

GRANTED that the solid tire has much to commend it, and that in certain lines of motor car service it seems indispensable, there is no denying the fact that a great many truck owners would rather cushion their loads better and increase their speeds with pneumatic tires if the latter were supplied to fit smaller wheels, with consequent saving in first costs, if not in mileage also. Wheel and tire makers have begun to realize that herein lies an opportunity which compares favorably with that of supplying the needs of the owners of small passenger cars. There is a fair possibility of a considerable and early broadening of the market for pneumatic tires through the production of stocky, short-set pneumatics to suit the needs of the truck men; and that demand may be greatly increased with a good educational campaign.

The Rubber Association of America and the Tire and Rim Association having established standards for 20-inch wheels to supplement the approved 24-inch size, several rubber companies have furnished truck manufacturers with try-out sets of tires 5, 6, 7, and 8 inches in cross-section and internal diameter of 20 inches. They are confident that the demonstrations will prove in a striking fashion the merits of the smaller wheel and tire. Certainly for omnibus and doubtless for much truck service as well there is an advantage in lowering the center of gravity in a vehicle by 2 inches.

Truck designers may be compelled to fit the new vehicles with propeller shaft brakes of large dimensions if there be difficulty in utilizing a brake drum of suitable size, but the truck makers can be depended upon to solve this problem. It will then be up to the tire makers to make casings and tubes that will vie in first and last cost with solid tires.

Factory Safety a Prime Requisite

OF quite as much importance in its way as "Making the World Safe for Democracy," is insuring the great army of factory workers against peril to life and limb. True, there has been in recent years a great advance in this direction, and to the credit of rubber manufacturers as a class it can be truly said that they have been foremost in the movement to lessen the hazards that menace labor. Actuated primarily by humane motives, they have learned that safeguarding the worker also pays in promoting a better morale in the factory and a better feeling between employed and employer. In fact, the progressive manufacturer is just as eager about the safety, health, comfort, and general well-being of his coworkers as he is of the quality, volume, and speedy outturn of his products.

The best course is to consider no machine suitable unless it is safe. If an accident occurs an expert should find out at once if the fault lay in the mechanical equipment, and if so, he should contrive to make a repetition of that accident impossible. A strictly modern manufactory is neither unhealthful nor dangerous. The machinery in it is made absolutely fool-proof, it is frequently tested for defects, the factory construction is sound and every shaft, belt, gear, conveyor, etc., properly safeguarded. Overcrowding is avoided, floors, walls, and windows are always kept clean, there are no dark corners, light is abundant but not glaring, the air is being continually changed, unsuitable clothing is banned, carelessness is penalized, and tidiness rewarded.

It is familiar experience that accidents are most common near quitting time when operatives are most fatigued. Hence avoidance of overwork is no less important than mechanical safeguards. In not a few cases such fatigue has been averted by lessening the working time; and yet no loss in production occurred, as through proper cooperation, work was so speeded up as to fully compensate for the lessened hours of labor.

WHILE THE AMERICAN TECHNICAL PAPERS ARE publishing pages of matter commendatory of rubber latex paper *The India-Rubber Journal* of London sends out its issue of September 16 with a cover printed on such paper. This is not only the acme of progressiveness but very effective rubber propaganda.

Can Rubber Be Controlled—II[1]

Views of the World's Rubber Men

No one subject has so engrossed the world of rubber as has that of control. The European press, particularly the English, teems with comment, criticism and suggestion. As a rule the American papers, that is the great dailies, only paragraph rubber conditions. They have departed from their custom notably of late but their conclusions have chiefly been drawn from only partially informed sources.

Reluctant though the American rubber manufacturers are to express themselves for publication, the following has been secured. As it was the desire of the majority that their opinions, rather than their names, be recorded, no names are given.

Cooperation Urged

"I believe that anything less than cooperation between the foreign plantation owner and American rubber manufacturing and financial interests will leave an opening for dissatisfaction and contention. The fullest credit is due the British for the vision, courage and energy which they have shown in developing the plantation rubber industry. Yet there is no disputing the fact that the overspeculation in planting, combined with the interrupted progress of the automotive industry which was brought about by the world war, is responsible for the present breakdown of the cultivated rubber industry that is largely the result of British effort or stimulation.

"The progress of the world politically seems indissolubly locked up in the close cooperation of Great Britain and the United States of America. Why should we not progress industrially in the same close cooperative relationship?

"Great Britain controls in crude rubber a product of basic importance to America in that two of our largest industries—rubber and automotive—are dependent upon British grown rubber. A continuation of the present system would drive the American manufacturer directly or indirectly into the plantation business. After having written off the millions which have been lost by the collapse of the cultivated rubber industry, rubber manufacturers and their financial sponsors are keenly alive to the necessity of stabilizing an industry which has suffered throughout practically its entire history from wide fluctuations in the price of the raw material.

"America as the great consumer of crude rubber is entitled to a part of the plantation profit and this can be best brought about through 'open covenants openly arrived at' in a spirit of international goodwill and cooperation. As all wars have an economic basis, so we must regard international cooperation as a peace measure and in line with the spirit of the times."

Should Consult Roger Babson

"We fear that the international movement for the reduction of plantation rubber has never heard of our friend Roger Babson with his Laws of Action and Reaction, and Supply and Demand. The effort to reduce the production of crude rubber seems to us almost like our old friend Canute and his broom. Water has been known to run up hill but not very long at a time."

Would Not Invest

"We are distinctly sorry for the plight of the rubber planters at the present time. Their product was a basic factor in building our business bigger and in making much money for us. Nevertheless they did not plant rubber with our profit in view nor did they hold the price down when our needs were greatest. On the contrary they took the highest prices they could get and gave no thought to our needs. This is not a criticism, as they had a perfect right to do so. It is simply a statement of fact. We do not see how we can help. I doubt if our company would invest in any international crude rubber company no matter how big or how amply financed."

Are Manufacturers, Not Planters

"We have been manufacturers for more than half a century. Rubber high or low, rubber scarce or plenty has made little difference with us. We are not planters and never shall be, even remotely."

Would Stimulate Further Planting

"Just how it would profit us in the long run to enter a big corporation that owned even 90 per cent of all existing plantations is not clear. Such a combine would of course raise prices which members of the combine would have to pay. Plantations outside of the combine would cut the price unless production fell below the market. New plantations would be rapidly installed, possibly with new methods and lower production costs. Wild rubber would come in greater volume. Reclaimed rubber and minor plastics would be used in very much greater volume. In a word, we would be likely to pay a higher price for raw materials than those not in the combine."

As to a Former Pool

"Years ago, foreseeing just such a crisis, our company proposed to several others to form a pool and buy into British or Dutch rubber plantations. The other companies did not see their way clear to join and the matter was dropped. I doubt if they would be any more ready today."

Refreshing Frankness

"Could not spare the money. Have troubles of our own. Hence these gray hairs."

Will Not Buy an Acre

"Rubber is not so awfully important from a present monetary standpoint as is cotton, for example. We spend far more for fabric than for rubber. We did not 'buy a bale of cotton' when that slogan rang out. We will probably not buy an acre of rubber. It is not good business, not that we do not wish the rubber and cotton producers all success, and we hope for neither underproduction nor overproduction."

American Invasion Invited

"If my memory serves, it was only a short time ago that American money in Far Eastern plantation was termed 'The American Invasion,' and was bitterly resented. Are we now invited to invade?"

A Weeding Out Due

"The plan has possibilities but is sprung too late. Not one man or company in one hundred will buy on a falling market. If rubber shares were climbing it would be easier and the nearer the top they got the more attractive they would seem. Sorry, but it looks as if a big weeding out of the weak was due, and a possible scarcity of rubber for a time."

Blames Good Tires

"We could not go in but we can place the blame for the present low prices, at least in part. We do not make tires but we appreciate that the tire dominates the market. Tire men

[1] Continued from THE INDIA RUBBER WORLD, October 1, 1922, pages 3-9.

have been making tires too good. That is, they have been producing mileage that is far in excess of what they get for the tires. Let them make a tire that produces half the mileage, and they will use twice the rubber. It would not ruin the market as there is no substitute for air-filled tires."

Charity Begins at Home

"Before attempting to alleviate troubles of the rubber producers in countries other than our own why not at least consider similar conditions in the United States. The business of reclaiming rubber is a very large and important one. In years past it has done quite as much to stabilize the crude rubber market, and often to enable rubber goods to be manufactured at all. Quite as many tons of reclaimed are used as are tons of crude. For certain goods it is a necessity. With rubber again at 30 or 40 cents a pound we could not get along without it. Today, this business is in even sorer straits than is the plantation business. And this distress is caused by the overproduction and low selling price of crude.

"If holding companies designed to help plantation rubber are planned, why not plan something that will help the reclaimer? Not that they have asked it, but rather because they would seem to deserve it. As to how such help could be extended is of course a problem."

Shut Down for a Time

"Rubber plantations are really forest factories for producing crude rubber. Too many were established for the needs of the market. They should therefore do as all other rubber factories are forced to do, run small shifts, or shut down. At the present time rubber factories in the United States have capacity far beyond the market needs, so they run on part time or shut down. Really it costs more to shut down a plant for manufacturing rubber goods than one for turning out crude rubber. In the former the plant deteriorates. In the latter the trees grow bigger and lay up more latex. The same policy to follow is not to try to sell out, nor to sell at a loss, but simply to quit until prices are right again."

Would Be Let Alone

"I believe that, had planters been free of attempts in the direction of restriction or government control, the ordinary pressure of economic forces would by now have provided a stable and reliable market, free from the various speculative movements upwards, with consequent rebounds, which have attended the various abortive attempts to tinker with the position."

Reduce Planting Costs and Sit Tight

"In a discussion of ways and means for rehabilitating the rubber planting industry, due consideration must be given the very important question of reducing the cost of production, gathering, marketing, etc. Great industries in various parts of the world have had to deal with a similar problem in the post-war period, and many of them have effected notable economies with a negligible amount of friction, especially with labor. Many rubber planting concerns have also 'taken the bull by the horns' and cut down expenses and introduced more efficient ways of carrying on their business until they have actually turned a loss into a profit. Not a few failed to see how they could economize at all, or how any profit could be hoped for until there was a marked rise in the price of and demand for rubber.

"But that it is quite possible to scale down production costs is shown in the annual report of one British company, which states that while it produced 23 per cent less rubber in 1921 than in 1920, the cost of producing it was 30 per cent less than in 1920. It stated that it also expected to reduce 1922 production costs considerably. Details were not given, for business reasons, as to how the economy was effected. Another company, however, made no secret of the fact that they have sold their 1923 and 1924 output at a trifle less than 14 cents per pound and they considered it a good sale. In spite of this, rubber may advance until it will ultimately reach, say, 20 cents."

Would End in Price War

"When rubber is under the maximum price, a manufacturer must buy far in advance to keep sufficient stock to cover his contracts; but if a combination were to set a price, say of 40 cents a pound, and the market price were 45 cents, the manufacturer must pay the current price or be short of stock to carry out his contracts, even though such action on his part be a breach of the combination terms to which he subscribed. Moreover, such a combination would array merchants and brokers on one side and manufacturers on the other in a price war of long duration and would end in chaos."

Not the Buyers' Fault

"Fault lies with producers rather than the buyers who merely meet the market prices. American manufacturers, with Canadians, absorb about 70 per cent of the world's crude rubber, although American capital does not produce 3 per cent of the crude that it consumes; yet American consumers would rather pay two shillings a pound with assurance that young plantations would not go back to jungle and that violent price movements would not take place later on. Remedy for demoralized market lies in either voluntary restriction or stabilization by the British and Dutch governments, whose citizens hold 90 per cent of all rubber plantation securities."

No Famine in Sight

"Not only is the area of planted acreage extending, but double yields from trees undergoing the new budding process are predicted by conservative planters; and hence a scarcity of rubber is increasingly unlikely. Such being the case, in order that the industry may be maintained, new opportunities must be seized and new markets created; and to this end the Rubber Growers' Association and the Rubber Shareholders' Association have been raising a fund for propaganda to increase the consumption of rubber goods."

Should Develop By-Products

"At one time while crude oil was being refined to produce illuminating oil and heavy greases, refiners were much troubled about getting rid of an annoying by-product, gasoline. But a way was found to utilize the latter and a great impetus given to the oil industry. In gas making, how to get rid of coal tar was a serious problem. How best to conserve it is the problem today.

"What now is waste in the making of crude rubber may in the future rival in value the primary product. Is not this what rubber planters should consider rather than to try to unload on the manufacturers?"

Work Through Colonial Authorities

"My own view is, that the entire matter can be settled by the British Colonial authorities with the help of the Rubber Growers' Association, if they have nerve enough to undertake it. British Malaya and Ceylon produced slightly over 80 per cent of the world's supply of plantation rubber in 1921. The figures just published for the first six months of 1922 show exactly the same proportion. At least one-third of the total area planted to rubber in the Dutch possessions is owned or controlled by British capital represented in the Rubber Growers' Association.

"If these British companies or a substantial portion of them will agree voluntarily to restrict their output in accordance with any plan which the British Colonial authorities would agree to enforce in their own possessions, it is evident that 85 per cent of

the total productive area would be subjected to restriction, and this is quite enough without bothering with the other 15 per cent."

Points to Survival of the Fittest

"Recent reports from a number of large estates mention a reduction in 1922 production cost, amounting in some cases to 6 cents a pound below 1920 cost, credited largely to more efficient management and in a degree offsetting the lower price obtained for crude rubber. One company increased its dividend 2½ per cent.

"Haphazard production is an evil that can only work harm to the industry. Prosperity can be regained by an all-around restriction of crop and a revival of trade. The only plan that worked well was the 25 per cent restriction scheme."

Normal or Standard Crude Production

From the planters' standpoint this refers only to plantation rubber. To the world at large, however, it would in fairness allow for a share for Brazilian rubber, and for reclaimed rubber. Regarding the last-named important and distinctly American product the following is quoted:

Cites Rubber Association Figures

"Regarding the normal or standard annual production of reclaimed rubber, we have just received statistics compiled from the 1922 Questionnaire of The Rubber Association of America, Inc., as follows, covering the first six months of 1922."

	Pounds
Number of pounds reclaimed rubber produced from raw and crude scrap, reported by manufacturers, who also reclaim....	23,501,915
Reported by six reclaimers solely.....	34,343,765
Total.....	57,845,680

One and One-Half to One, the Ratio

"Judging from rubber formulas of three or four years ago, there would certainly be three pounds of worn-out rubber coming from each pound of crude rubber used. Allowing for a considerable shrinkage, would say at the outside 50 per cent, this would give a productive possibility of at least one-half more than the normal production of crude rubber."

Our Hundred Thousand Tons

"In relation to the normal production of reclaimed rubber annually in this country, we should say that it would run around 90,000 to 100,000 tons. Under the old values of rubber, statistics show about one pound of reclaimed to every two pounds of crude rubber, but it is commencing now to run about one pound to every four."

Crude and Reclaimed to Increase

"As to the volume of reclaimed which can be consumed upon the basis of 330,000 tons of crude being produced annually, we would say that within the next year or so we believe enough reclaimed could be consumed to enable the efficiently managed reclaiming plants to operate at a nominal profit. We think you will agree with us that everyone expects a greater and greater consumption of crude rubber from year to year, and in face of this it is hardly possible that restrictions would be maintained at that volume.

"There are large quantities of reclaimed being used today, despite the price of crude rubber, which indicates that it is being used for its inherent merits. From our experience, the tonnage of reclaimed used today is greater than at this time last year, and we feel that unless some means is found for marketing crude at a still cheaper price than the present, reclaimed will continue in use at its present volume at least. Were the price of crude to be advanced to say 25 cents a pound, we know from past experience the use of reclaimed would be decidedly accelerated.

"In other words, we are very far from admitting that the reclaimed industry has received its death blow, but on the contrary, it is possible that this painful experience through which we have passed may result in benefits to us and the rubber industry in general."

One of Reclaimed to Four of Crude

"My estimate—and it is only that—of the normal requirements of reclaimed rubber is about 225,000,000 pounds per year. This embraces the reclaimed rubber manufactured by both reclaimers and the rubber manufacturers who produce their own requirements. According to the best information available, the total production of reclaimed at the present time is running in the neighborhood of about 125,000,000 pounds per year. Some time ago the ratio of reclaimed consumed was about two pounds of reclaimed to three pounds of crude. At the present time it is running about four and one-half pounds of crude to one pound of reclaimed, due of course, to the low price of crude and the fact that by reason of low production it was not possible to get the price of reclaimed rubber down to a sound level until comparatively recently.

"I personally have no fears for the future of the reclaiming industry as it is too important a factor to be permitted to disintegrate, but unquestionably it will bring about a survival of the fittest. In other words, those who are able to reduce their cost of manufacture and also take a lesser profit per pound sold will be in a much more advantageous position than those who are not so efficiently equipped from a manufacturing standpoint.

"The above statements are made with regard only to the market position of crude rubber and reclaimed rubber. However, the very salient factor of the technical advantages obtained by the use of reclaimed rubber in manufacturing a great many articles is not being lost sight of by the rubber manufacturer. I refer to the less time required for mixing, with the consequent reduction of machine hour and labor costs, the quicker cure, and the more economical handling all through the plant."

Preliminaries of the International Plantation Company

A meeting of those interested in the plantation rubber industry took place on September 15 in the Council Room of the Rubber Growers' Association to discuss with Edgar B. Davis, recently arrived from New York, the proposal to form an international plantation rubber company on a large scale for the stabilization of the industry. Sir West Ridgeway presided.

After a general review of rubber conditions, Mr. Davis spoke in part as follows:

"The proposal for the organization of an international plantation rubber company represents the crystallization of ideas held by my colleag, Mr. Mahony, and myself for a period of over fifteen years, aided in a most important manner by an intensive study of the industry by Mr. Figart. What we are proposing is a simple and economically sound plan which would be of great benefit to the industry, and a profitable venture to all concerned. *We are not aiming at monopoly.* We are not even proposing that you yourselves should monopolize the industry. We have assumed on the best evidence obtainable that in the vicinity of £150,000,000 sterling is invested in this industry, and that it would require a corporation capitalized at say £50,000,000 sterling to exercise a stabilizing effect.

"We recognize that the development of this industry has been due to British vision, pluck and energy, but we also would point out that American participation, amounting as it does to less than two and a half per cent of the entire acreage planted, has had no appreciable effect in bringing about the present conditions. On the contrary, it is the phenomenal development of the automotive

industry in America which probably has prevented utter disaster to the plantation industry.

"We believe that control of this industry should remain in British hands. In saying this I am not retracting the statement made to the corporation with which I formerly was associated, that it is sound economics for a corporation to own its own estates. But the merging together—and this point is important—of our respective national interests in a great corporation such as we propose is a far greater cause to serve. Had we designs upon your industry, how better could we have defeated our purpose than by heralding it broadcast?

"Now as to the advantage of cooperation. The investor has an international market for his securities; he scatters his risks; he benefits by the economies of large-scale management, and by centralized administration of labor; he secures the advantages of new processes and of a uniform product; he is in a much more powerful position to deal with policies affecting output, surplus stocks, extension of present uses of rubber, stimulation of new uses and, safe-guarding of future supplies.

"In connection with new processes, I have reason to believe that future production very largely will eliminate present wastes, and insure absolute uniformity of plantation rubber. The manufacturers great and small through an open market, in their turn will benefit by the large-scale production of a uniform product.

"Manufacturers have incurred such tremendous losses by the violent fluctuations which have occurred in the price of the crude material that stabilization absolutely is necessary from their point of view. The proposed corporation can wield this influence.

"I represent no great corporation now, nor am I the emissary of any group of financiers. But I am able to assure you that if the leaders of the industry, or a substantial proportion of them are able to get together here, they will receive ample and potent support from our side. We have gone as far as we can go with financiers and manufacturers until we know that the plantation interests desire to support this cooperative international plan."

Interesting Letters from Our Readers

First with Dye Accelerators, Claim

TO THE EDITOR:

DEAR SIR: In an article in THE INDIA RUBBER WORLD for August 1, 1922, on Page 743, it was stated that "The author in January, 1919, discovered the powerful accelerating properties of some of the color bases of the basic organic dyes," instancing particularly methyl violet and auramine.

This same discovery was made five years before by me in the United States, as shown by United States Patent No. 1,229,724.

Liège, Belgium. ETIENNE DE MEEUS.

The author referred to was Joseph L. Rosenbaum and the article was an abstract of a paper on accelerators and rubber mixtures read by him before the Institution of Rubber Industry, Manchester District, England, February 6, 1922.

The de Meeus application was filed July 10, 1914, Serial No. 850,163, and the patent was granted June 12, 1917, with mesne assignments to the Beacon Falls Rubber Shoe Co., Boston, Massachusetts, at whose plant in Beacon Falls, Connecticut, M. de Meeus carried on his experiments. In the specifications he stated that substances he had found suitable for use as accelerators that not only would quicken vulcanization of rubber but also improve the product were "aromatic compounds containing one or more benzine or homologous groups, and of a basic nature," listing among such substances "methyl violet base, Victoria green base, Victoria blue base, auramin 0 (anilin yellow), and rosalinn base."—THE EDITOR.

THE "KRO-FLITE" GOLF BALL IS ONE OF THE NEWEST BRANDS put out by A. G. Spalding & Bros., 124 Nassau street, New York, N. Y. This ball claims unusual power and durability and conforms in size and weight to the standard requirements in both the United States and Great Britain.

Judicial Decisions

F. A. CIGOL RUBBER CO. vs. CIGOL. New Jersey.

In an action brought by a corporation against one of its directors for specific performance of a contract to transfer certain patents and patent rights to the complainant corporation, in return for which he had agreed to accept 12,904 shares of the common stock of the corporation, if such patents, etc., were not worth the par value of the stock issued therefor, so that the defendant director would be guilty of a misdemeanor under Corporation Act, Section 49, as amended by Public Laws, 1913, page 28, the court held that such act would not make the transfer illegal or void, but that the defendant director, acquiescing and participating in the directors' action and receiving the stock and failing to give the agreed consideration, could not take advantage of the wrong.—*Atlantic Reporter*, Vol. 117, page 146.

Adjudicated Patents

I. T. S. RUBBER CO. vs. ESSEX RUBBER CO. United States Circuit Court of Appeals for Massachusetts.

The Tufford reissue patent, No. 14,049, claims 5-9, for rubber heel lift, construed so as to require hearing to determine infringement. *Federal Reporter*, Vol. 281, page 5.

Appraisers' Decisions

No. 45197. Protest 941956 of American Chicle Co., New York.

CHICLE imported from Mexico and classified as refined at 20 cents per pound, claimed to be crude and dutiable at only 15 cents per pound under the provisions of paragraph 36, Tariff Act of 1913.

Opinion by McClelland, G. A. The chicle in question was imported in a crude condition and was held dutiable at 15 cents per pound under paragraph 36. Sheldon vs. United States (8 Ct. Cust. Appls. 9; T. D. 37123) followed. *Treasury Decisions*, Vol. 42, No. 11, September 14, 1922.

No. 45239. Protest 942577 of William Sleight, Los Angeles.

PRINTERS' BLANKETS, 3-ply, in rolls 25 yards long by 48 inches wide, classified as manufactures of cotton at 30 per cent ad valorem under paragraph 266, Tariff Act of 1913, claimed to be composed in chief value of rubber dutiable at 10 per cent under paragraph 368.

Opinion by Weller, G. A. Found that rubber was the component material of chief value; the blankets were therefore held dutiable under paragraph 368 as claimed. *Treasury Decisions*, Vol. 42, No. 13, September 28, 1922.

ANOTHER USE FOR OLD TIRES

Underwood & Underwood

Looping the Loop in a Tire

A new sport—the "whirl dive." Start from the top of a hill. Curl up inside the casing. Get two friends to start you toward the water. It's exciting.

Rubber Latex Paper

Cost of Latex—Best Preservative—Method of Using—Coagulation—Hastening Hydration —Vulcanization of Latex Paper

By Frederick Kaye, A. R. C. Sc.

QUITE recently Frederick Kaye, A.R.C.Sc., addressed a London audience of men prominent in rubber and paper manufacture and cleared up some points that have not heretofore been explained. As he prophesied a close union between rubber manufacturers and those who make paper, perhaps in the near future, his conclusions should be pondered by both of the industries involved. The high lights in his address follow:

Cost of Latex

Some rubber manufacturers have put forward the objection that in rubber latex we have increased charges due to freightage, that is, in a 30 per cent rubber-containing latex, we have to import 3 tons of latex to get 1 ton of rubber. The only cost in its use in paper-making, is the proper dilution and filtration if necessary, when it is added to the beaten fiber in the beater. Over and against this we have, in the case of coagulated rubber, sometimes the washing of the rubber, but always the cost of the mechanical breaking down of the rubber before it can be compounded. This charge may be from ½*d.* to 1*d.* per pound, or say an average of £7 to £8 per ton. This will help to balance the increase charged due to the freightage on the greater bulk of rubber in the latex form.

The Best Preservative

Considerable interest and experimentation are being given to finding the best method of latex preservation. I have found that ammonia-preserved latex is best for papermaking because there is less agglutination of the particles by this method than any other. That is, the latex remains more perfectly fluid.

Some months ago the Rubber Growers' Association kindly supplied me with 150 gallons of latex, which was, I think, rather excessively diluted with water as it contained only 17.5 per cent actual rubber content and a rather high proportion of ammonia. It was perfectly fluid and acted very well in many commercial experiments in paper mills.

I have also had 1,250 gallons of latex from Malaya, which has all arrived in splendid condition and has been used in many mills in Britain, America, Holland, and Belgium. The latex consisted of 1,000 gallons of fresh, good quality latex containing about 35 per cent rubber to which was added 250 gallons of water containing, or to which had been added, 43 gallons of strong ammonia. The latex as delivered here contained approximately 30 per cent of rubber and 3 per cent to 3.5 per cent of ammonia (expressed as to the weight of commercial ammonia put in, not the ammonia as chemically expressed). I also received from Malaya seven tins each containing approximately 2 gallons of diluted latex with varying proportions of commercial ammonia, to see to what minimum limits of percentages of ammonia we could safely work to.

Below I give the quantities of ammonia used and my calculations as to percentages of commercial ammonia referred to the original latex and to the latex diluted. On examination of the samples it was found that all were in a perfectly preserved condition with the exception of samples Nos. 6 and 7, where the amount of commercial ammonia was less than 1 per cent.

It looks as if 3 gallons to 3.5 gallons of commercial ammonia per 100 gallons of original good latex will be a safe amount for the complete preservation of the latex.

PRESERVATIVE QUANTITIES AND PERCENTAGES

No.		Ounces	Commercial Ammonia: Percentage to latex	Commercial Ammonia: Percentage to diluted latex
1	1½ gal. of latex, ⅜ gal. of water	9	3.7	2.9
2	1½ gal. of latex, ⅜ gal. of water	7.87	3.2	2.5
3	1½ gal. of latex, ⅜ gal. of water	6.75	2.8	2.2
4	1½ gal. of latex, ⅜ gal. of water	5.63	2.3	1.8
5	1½ gal. of latex, ⅜ gal. of water	4.5	1.9	1.4
6	1½ gal. of latex, ⅜ gal. of water	2.25	0.93	0.7
7	1½ gal. of latex, ⅜ gal. of water	1.125	0.79	0.62

In the shipment from Malaya above quoted the charge for the ammonia was ridiculously high, due to a local shortage, etc. It was $10 per gallon, or, the cost per gallon of latex was 10*d.* for ammonia alone. Taking the price of ammonia delivered at the docks here, with all freightage, etc., I am informed by London agents and merchants that ammonia ought to cost on the plantations less than 5*s.* per gallon. I think, therefore, that the cost of ammonia used as a preservative will be 1½*d.* to 2*d.* per gallon of latex exported.

I am hopeful that latex will be delivered in London at 3*s.* 6*d.* to 4*s.* 6*d.* per gallon with a rubber content of 30 per cent. That is, the rubber in the latex would be sold at 1*s.* 6*d.* or even less per pound. Therefore, on such a basis it is an easy matter to calculate the cost of the latex per ton of paper made, given a definite percentage rubber content. Thus a paper containing 0.5 per cent rubber would cost in latex 18*s.* per ton of paper made.

The Method of Using Latex in Paper-Making

The great essential is the thorough dilution of the latex with water before addition to the beaten pulp. In this manner the latex quickly penetrates and becomes intimately associated with every particle of the beaten fiber. I have usually found it best to add the latex towards the end of the beating process because with the prolonged and severe beating to which some particularly strong fibers may be subjected they may be in a condition when some of the rubber will be thrown out in fine particles.

Coagulation After Adding to Pulp

The coagulation of the rubber is often a comparatively simple matter. In some cases, as with a sulphite pulp, and when small proportions of latex are needed, the fiber will take up the coagulated rubber without the addition of a coagulative agent. In many experiments I have used such salts as magnesium sulphate as the coagulative agent, and in others, such acids as acetic acid. I have found that in most cases it is best to use alum exactly as in ordinary paper-making processes. Where the paper has to be tub-sized, alum can be used as the coagulated agent. Where the paper is machine-sized the latex may be added before or after the size and alum, the condition being that sufficient alum is added to throw out the size and rubber completely. It is important that with an alkaline pulp the final condition is made faintly acid to prevent loss of rubber latex in the back water. For example, in one commercial experiment with the calculated amount of latex added to give a rubber content of 2 per cent in the dried paper, analysis of this paper showed a rubber content of 1.7 per cent, while with the same fiber and latex added to give a content of 4 per cent rubber, analysis showed a rubber content in the paper of 4.07 per cent.

Hastening of Hydration

Rubber latex has some specific effect upon the fibers in the beating engine and upon the rate of hydration of the fibers. It is in this direction that the value of rubber latex as a cheapening factor in paper production will be fully seen when large supplies of latex reach the paper-making countries, so that all phases of the effect of rubber latex can be explored in the mills on a wide and continuous scale.

The object of beating paper stock is to attain a certain degree of hydration. This varies with different grades of paper. The hydration of the fiber is controlled by the mechanical action of the bars of the beater roll acting upon the fibers as they cross the bedplate, whereby the fibers are opened out, cut, and mechanically modified so that the action of the water in linking onto the fibers to give hydration is intensified for the desired result. In many cases these actions are slow, so that with some fibers the beating has to be prolonged for many hours.

There is every evidence that rubber latex, even in small quantities, accelerates the rate of hydration. That is, the time required for a certain stock to reach a certain grade of strength and quality can be shortened.

In rubber latex we have colloidal particles electrically charged, and if these are attached to the cellulose fibers a new electric condition of the fibers in relation to the water medium is produced which increases the affinity of the groups for water and the rate of hydration is intensified. As a result of all this, fibers in the paper made with a finish to which has been added small or larger amounts of rubber latex are often closer and more uniform in texture than a paper of the same fiber made without rubber latex.

We must look for some such physical explanation of the effect of very small amounts of latex in improving the texture and strength of paper. Paper can be considerably improved by such small amounts as to give a rubber content of 0.1, 0.2, and 0.5 per cent, and so on.

The influence of the time of beating on the strength and other qualities of a paper has been repeatedly experimented upon. Below are given some figures obtained with a certain fiber where samples of the paper were made after every half-hour of beating, up to five hours.

Substance	Average increase per half-hour beating period
Demy lb.	0.5 cc. to 1.0 cc.
Tensile strength for strip 0.2-mm. thick and 15 mm. wide	0.5 k.
Tensile strength per sq. mm.	166 grams.
Bursting strain	2.1 lb. per sq. in. for a thickness of 0.1-mm.
Breaking length	400 meters.

The Vulcanization of Latex Paper

Paper containing rubber latex contains the rubber in such a condition that most of the paper need not be vulcanized as it is durable, and satisfactory without. It is very probable, however, that when we are making goods containing the higher percentage of rubber, say 5 per cent, 10 per cent, and 30 per cent and over, we may find that vulcanization will be an advantage. This will be investigated and reported upon in due course. I have, however, made many experiments on vulcanization of the paper. Over two years ago Mr. Peachey vulcanized many samples of paper for me by his process, and I found there was often a considerable increase in strength. Vulcanization also makes the paper stiffer, which in some grades of material will be an advantage. I have myself worked out a process which I call *self-vulcanization*, details of which I hope to put before the industry in due course.

Many Mills Experimenting

Practical commercial experiments in many mills have shown that all grades and qualities of paper can be improved in some regard by the use of rubber latex. Already commercial experiments have been arranged for in about 30 mills in England and Scotland, while many mills in the United States and Canada are experimenting with rubber latex in the manufacture of their products. Experiments have been conducted in mills in Holland and Belgium, and arrangements are being made in the mills of Spain, France and Norway. The field is open for other countries in Europe as soon as adequate supplies of latex reach London.

The Paper and Rubber Industries to Join

The world's output of paper is over 14,000,000 tons per year. The value of this paper, taking an average selling price at £20 per ton reaches £280,000,000, but the real value is, I think, higher than this, probably well over £300,000,000 per year. When the rubber interest joins up to such a giant industry immense possibilities will open out to the joint efforts and enterprise.

The application of rubber latex to papermaking will not only give a ready means of improving the quality of paper, but by cheapening paper production it will open out many new fields for the use of paper, and thereby the paper industry will greatly prosper and benefit by the process.

When we get waterproof latex paper manufactured on a large scale in Britain I am hoping that the plantation industry and the papermaking industry will join forces, and through Parliament compel the greater regard to the protective packing of food in our country. Another possible use of waterproofed paper is as a protective covering for the young shoots of sugar cane on sugar plantations. The effect of such covering is to check growth of weeds while the soil is maintained in a more humid condition due to lessened loss of moisture by evaporation. The temperature of the soil is also maintained one degree or more warmer than the area where moisture is being freely evaporated from, and it is probable, too, that the beneficial bacterial activity in the soil is strengthened in some manner.

To Displace Leather

While the use of rubber latex will greatly benefit the ordinary paper production, there will open out the manufacture of new kinds of rubber goods on a paper-making machine where we use much larger proportions of rubber. In this way we shall be able to make goods to take the place of leather, and to produce boards of such high bursting strain and capable of such delightful finish that they may take the place of boards in the construction of furniture, doors, etc., in houses and even in construction of motor cars. Linoleum substitutes can be readily made on a board machine.

Coloring Latex Paper

I have conducted a number of experiments on the dyeing of latex paper with success, but I am pleased to say that the British Dyes Corporation, Ltd., who are keenly interested in this subject, have kindly undertaken a thorough investigation of the dyeing of rubber latex paper and of rubber latex products containing larger proportions of rubber up to as much as 30 per cent and more of rubber. I am grateful for this help to Mr. Lefebure of the Development Department, London, and Mr. Horsfall, chief colourist, and his assistant at the Blackley Works, Manchester.

From the last-named quarter, I have received the following:

"We have prepared a number of dyeings on paper (bleached sulphite cellulose pulp) with the addition of 1, 10 and 30 per cent of rubber latex, as supplied to us by you. The results, we think, are very encouraging. The best results have been obtained hitherto by the use of basic colours but we have no doubt that, by suitably working out a process, equally good results can be obtained with other classes of colours. The point you might like to make is that, owing to the whiteness of the latex, rather brighter results are obtained, at any rate in the case of basic colours, than when no latex is added."

Gustav Heinsohn on Rubber Latex in Paper Making

By Frederick Kaye, A. R. C. Sc.

Under the title of "Rubber Paper from Fiber Pulp and Rubber: Comments Upon the Kaye Patents and Others," Gustav Heinsohn has published an article in the September number of this journal about which I beg to make some remarks.

The article in question is somewhat like the curate's egg, it is good in parts while other parts would require vivid appellations to describe them. I think that some of the errors set out in Mr. Heinsohn's article are due to his lack of knowledge both as to the nature of rubber latex and as to the process of papermaking.

First, I cannot but controvert his assumption that rubber manufacturers have not neglected the use of rubber latex in manufacturing processes. I think he cannot produce proof that 1,000 gallons of latex has at any time during the last 100 years been imported into any rubber manufacturing country until I took up the work of the use of rubber latex in papermaking. I really doubt if a total of 1,000 gallons has been shipped during the 100-year period since Hancock's experiments.

I am familiar with Hancock's work as set out in his patent in 1825, but it has no bearing and priority upon my process. He proposed to take any suitable fibers and lay them in layers upon a smooth inclined board and then to pour or paint over the layers the juice of the Hevea tree, and afterwards allow the water content of the juice or latex to evaporate in a room heated to say 80 degrees F. This process is totally dissimilar from my process for using rubber latex in papermaking as any practical papermaker knows.

It was an unfortunate fact that Hancock failed to be able to get sufficient supplies of well preserved rubber latex for, otherwise, he might have led the rubber manufacturing industry of 100 years ago into the fruitful direction which is opening out to our vision today.

The Castilloa latex for which he gave instructions to be shipped in quantity from Mexico unfortunately arrived in a coagulated condition, as was rather to be expected unless very special care was taken. All workers with Castilloa know that the rubber separates from this latex more easily than in the case of Hevea latex. It can be quite readily separated by centrifugal action. In 1910, when I was in Mexico, I had many kinds of latices, including Castilloa, sent to my laboratory in Mexico City from the plantations and forests of the subtropical regions of Mexico. But as these arrived after only 2 or 3 days' journey the latices were, for the most part, in the uncoagulated condition and were therefore available for experiments.

Mr. Heinsohn refers to a British patent for the production of an adhesive substance made by the admixture of glue and rubber latex and subtly infers it might challenge my patent rights.

I cannot but observe that this is nonsense as well as being an unfair assumption. The patent quoted refers only to the production of an adhesive composition to be used to stick different surfaces together, such as leather, etc., and to form a binding material between a leather surface and rubber. It is found, however, that the films produced when the adhesive is allowed to evaporate to dryness give a separation of the two ingredients—a glue film on the under surface, and a rubber film on the upper.

The whole process as set out in the claims for this patent show that the inventor had not the remotest notion as to any possible connection with any paper-making process.

The assertion that latex is rubber solution I cannot agree to.

Mr. Heinsohn says: "Granting that rubber latex is rubber in solution there are numbers of patents that would seem to conflict with that of Professor Kaye's." We might just as well say: "Granting that the moon is made of green cheese the mice would eat it—if they could get at it." If rubber latex is rubber solution then rubber solution is rubber latex, which is not true in fact and is an illogical absurdity.

All practical rubber men known that rubber solution is made by masticating coagulated rubber upon hot rollers and then treating this material with some organic solvent—such as naphtha, benzol, benzine, etc., or with carbon bisulphide, etc. According to Weber the solvent dissolves in the rubber and not the rubber in the solvent. It is impossible to mix any of these "solutions of rubber" with water and therefore they are all inadmissible in a true papermaking process.

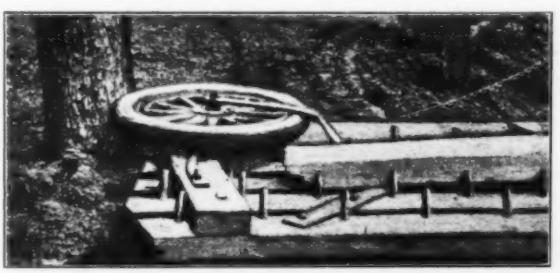
Rubber latex, on the other hand, cannot be *made;* it is *produced* by nature and used as taken from the rubber-yielding tree but sometimes preserved by a suitable anti-coagulant. It is a colloidal solution, consisting of infinitely minute particles of liquid rubber, intimately dispersed in the water or serum from the laticiferous tubes of the tree. It is miscible with water in all proportions and therefore instantly available in our paper-making process, where, say, 1,200 pounds of fiber is being beaten, floating in 5 or 10 tons of water.

I cannot understand for what purpose Mr. Heinsohn has quoted the series of patents he does because they have no bearing on any papermaking process or upon the use of rubber latex. I rather think that what happened was that Mr. Heinsohn sent his stenographer into the nearest available Patent Office Library with instructions to quote any patent that mentioned fiber or rubber without any just regard to the text and real purport of the patent.

I am happy to say, however, that already my patent claims have been accepted in twelve countries and are well on the way of acceptance in as many more and that in no case have any of the previous patents cited by Mr. Heinsohn been quoted against me.

RUBBER WHEELS ON HARROWS GUARD TREES

Automobile wheels having cheap pneumatic tires are attached to the ends of smoothing harrows used in sowing cover crops in many western orchards, and they save a great many trees from being barked. The wheels are so placed that the tire treads extend



How Auto Wheel Is Attached to Harrow

about four inches over the side and the front of the harrow at either end, which allows of very close-in work being done. Implements thus equipped are, of course, used with special care among trees which are too young to stand much bunting from harrows. The air pressure for the inner tubes need seldom be more than twenty to thirty pounds. The illustration shows the mode of attaching the wheel on the upper side of the harrow.

WOMEN'S RUBBER GIRDLES INCREASINGLY POPULAR

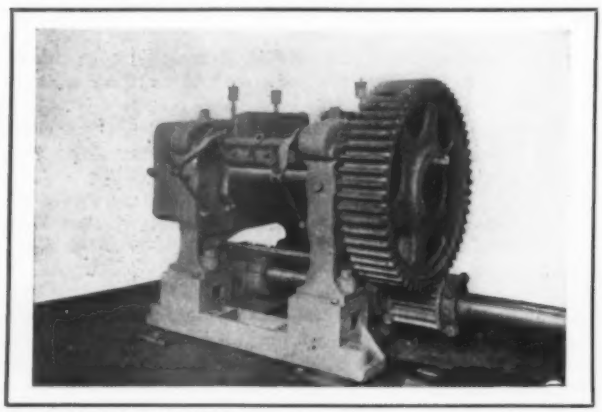
In a recent issue of *Financial America* it is stated that producers of rubber (elastic) girdle varieties of women's corsets are oversold, and that prominent makers are working overtime in order to catch up with back deliveries. Sales for September are said to be 50 per cent greater than those for the preceding period, while one manufacturer has stated that business along this line for the six months ended September 1 was 150 per cent greater than that for the corresponding period last year.

Machinery for Hard Molded Plastics

The interest that the rubber industry is showing in cold and hot molding, indeed in all types of molding, and the machinery employed, renders this article of particular timeliness.

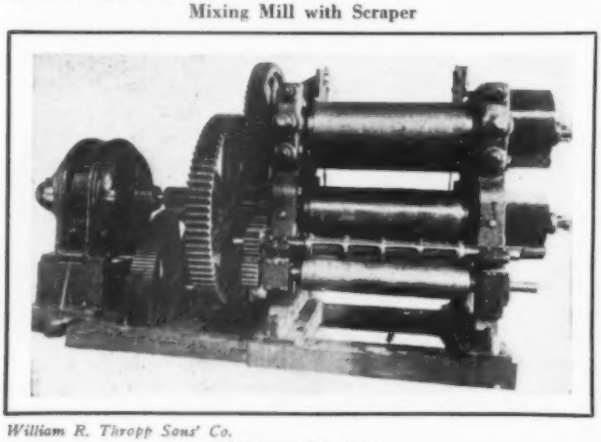
HARD molded plastic materials, considered as insulation at least, are of three types: (1) phenolic resins, (2) shellac composition, and (3) bituminous cold molded compositions. The first type comes to the molder ready for use and requires no further preparation. The second and third types are compounded where molded. The machinery employed is similar to that for rubber working and is made by builders of rubber machinery and by others who specialize in machinery for the plastic industry.

Rubber, shellac and bituminous matter as binders of compounding ingredients offer individual mixing problems owing to their differences in nature. Rubber requires heavy washers, mixers, warmers and calenders. Shellac and similar varnish gums need no wash mills, but only mixing rolls with scraper, blanking machine and steam plate. Bituminous compositions are mixed in a kneading machine, and blanked for cold molding.



Farrel Foundry & Machine Co.

Mixing Mill with Scraper



William R. Thropp Sons' Co.

Blanking Machine

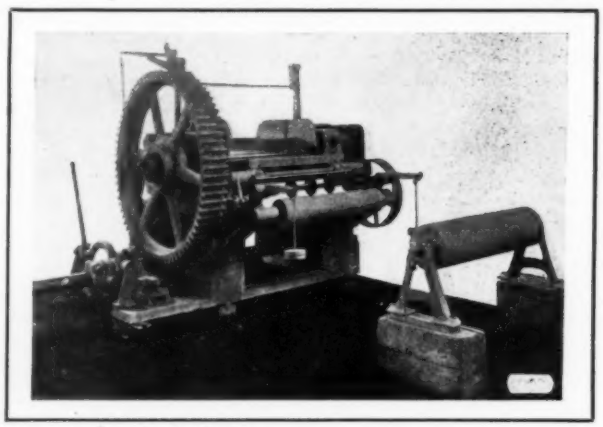
In the case of rubber working, the machinery for preparing stock is necessarily heavy and on solid foundations, while for working either shellac or bituminous stocks the machines are lighter and require no specially built foundations, generally being bolted to the mill floor.

Accessory to compounding are the usual scales for weighing ingredients, compound pans to contain the batches, and enclosed sifter for ingredients and reworked ground dust from the mold waste. In the case of phenolic resin stock, which is always handled in a positive or plunger mold, the mold charges require to be weighed with much exactness which makes an automatic weighing device very desirable.

Hardening of the molding plastics under consideration is effected in each instance by brief heat and pressure or cooling and pressure, hence no autoclave or vulcanizer of any kind is employed.

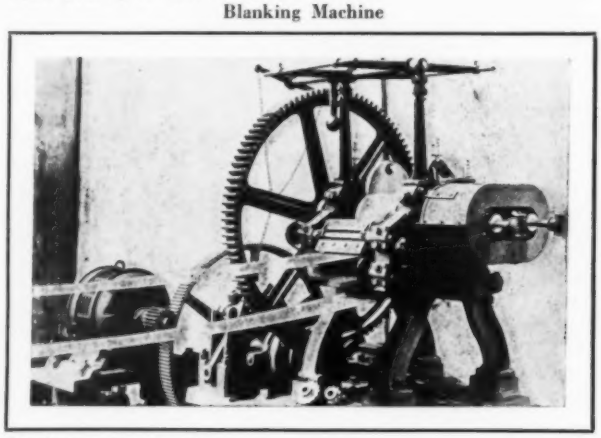
Mixers

For compounding stocks with shellac or varnish gum binders an ordinary two-roll rubber mixer is used with steam-heated rolls having close-fitting metal guides, and an iron mill pan. An adjustable hand-operated scraper is fitted to the frame for removal of the mixed batch from the back roll. Such a mill is built by all the manufacturers of rubber-working machinery.



Farrel Foundry & Machine Co.

Blanking Machine



Birmingham Iron Foundry

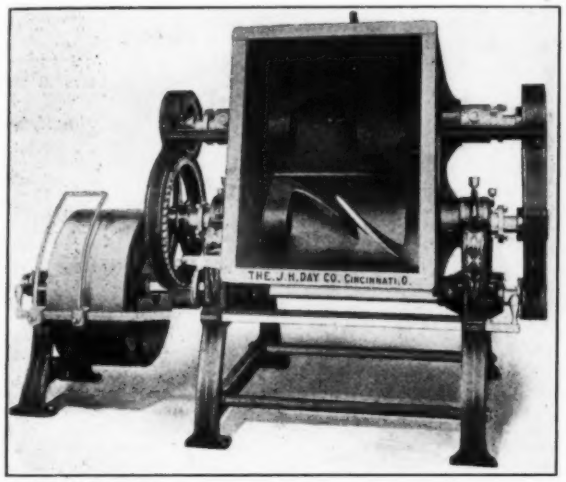
Blanking Machine with Apron

The rough mass removed by the scraper requires to be sheeted and marked or scored for breaking into convenient pieces for subsequent handling. This is done on a special machine or blanker.

Blanking Machine

Several styles of blanking machines are used, and all do essentially the same work. A typical one comprises a pair of hori-

zontal rolls, the temperature of which can be controlled. The rolls are adjustable and may or may not be flanged for setting at a fixed distance apart. In part of the rolls is arranged a revolving set of straight blades for cross-marking the sheet stock as it leaves the machine, carried on an endless belt or apron running under the cross knives. When desired a gang of circular knives is brought into action to score the sheet lengthwise. The use of two sets of knives thus marks the stock into rectangles. When cooled the stock is brittle and is easily broken on the scorings into convenient pieces for storage or presswork.

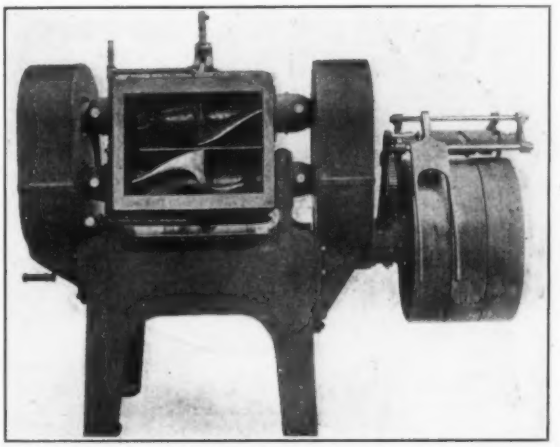


The J. H. Day Co.

Imperial Kneader and Mixer

Kneading Mixer

Compositions containing a bituminous binder are mixed damp in a form of machine known as a kneading mixer. This machine consists of a box-like compartment or container for holding the ingredients while being commingled by the revolving of a pair of mixing blades which thoroughly mix and knead the materials into a homogeneous mass. When mixing is complete the containing portion of the machine can be tilted for the convenient discharge of the batch, which next goes to the blanker for sheeting, the same as in the case of shellac plastic.

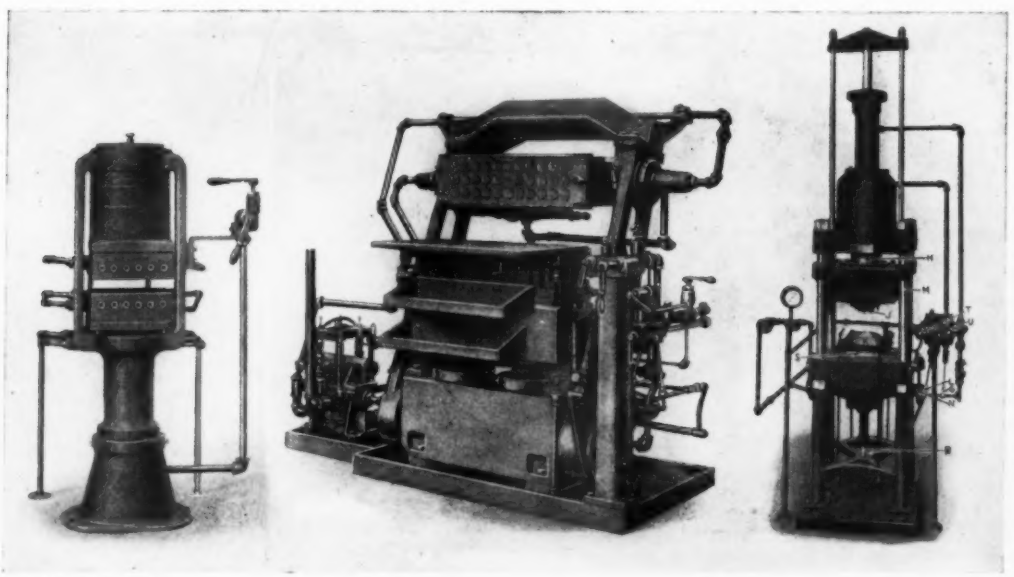


Joseph Baker Sons & Perkins Co.

Universal Masticator

Presses

Several styles of presses and dieing machines are employed in hard plastic molding, of which some are heated by steam, gas, or electricity and others cooled by water. A typical machine represents the ordinary form of hydraulic press operated from a pump and accumulator and either steam-heated and water-cooled or with platens heated by gas burners, as the conditions may require. The same type is made rodless for increase of rigidity.



The Chas. Burroughs Co.

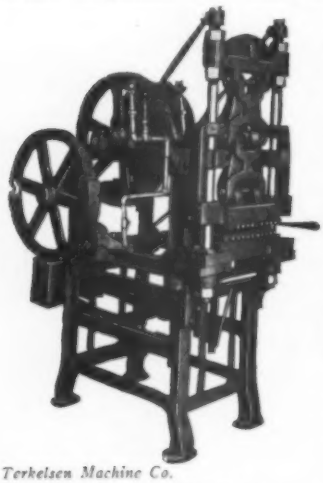
Rodless Hydraulic Press **Tilting Head Semi-Automatic Press** **Inverted Ram Semi-Automatic Press**

Semi-Automatic Presses

Speed is an important factor in plastic molded output since many of the objects made are diminutive. This has led to per-

fecting semi-automatic molding presses, one form of which is shown.

Presses of the semi-automatic type are designed for molding articles of phenolic resins where the molding cycle is about five to six minutes. A vertical press of this type is also illustrated, with mold K containing its allotment of material. When lever G is raised the inverted ram H with the mold force J attached descends, compressing the material and forming it into the mold shape.



Terkelsen Machine Co.

Toggle Joint Die Press

After proper heating and cooling periods, lever G is lowered and lever L is raised, causing the ram to withdraw the mold force J. As the ram H reaches a certain height it engages nuts on the side rods M connected with ejecting pins which push the mold K upward off of a central core into a position for easily removing the molded object. Valves T and U are steam and water valves for heating and cooling the mold parts.

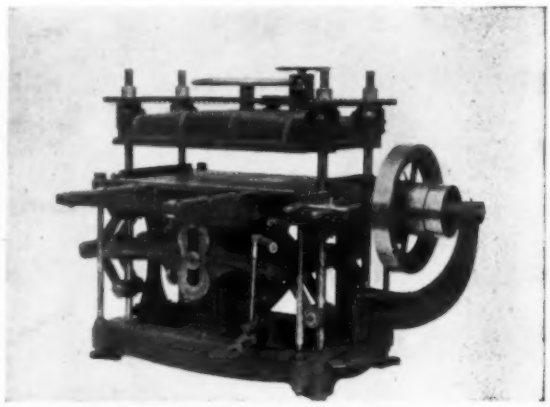
Tilting Head Press

A semi-automatic press of tilting head type is pictured in open position. The frame carrying the head is hinged at the base of the machine and the head carrying the top of the mold turns back like an open book. The tilting of the head positions the upper dies in a vertical plane enabling the operator to clean dies or set inserts with a minimum expenditure of labor and time, which is impossible with a fixed head type of press.

The same conditions hold true for the lower dies which are in full view and easy of access. The vertical plane of the upper half mold when tilted back is in line with the back edge of lower half mold, giving an unobstructed and clear space in which to work.

This press is also very economical in the use of high pressure water, it being possible to use a very short stroke because of the tilting feature.

Hydraulic valves for operating the main rams, tilter cylinder and steam and water control are mounted on the column at the right of press, enabling the operator to control all movements of the press from one position.



The Seybold Machine Co.

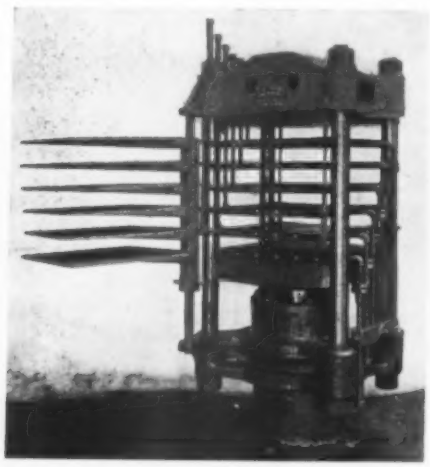
Single Head Die Press

The platen of the press is returned to its normal position, after each operation, by the action of two pull-back cylinders which are connected to the line pressure at all times, making possible the use of an automatic knockout for the ejection of finished molded articles.

Die Presses for Shellac Molding

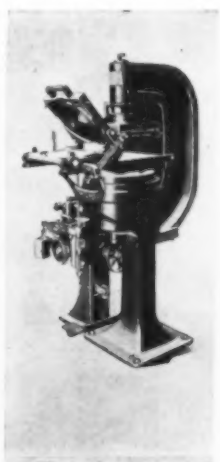
A very rapid press for shellac work represents a compound-gear, cam-driven die press capable of rapid production. Another die press intended for the same purpose is also shown. It is used in making phonograph disk records at the rate of one every 35 seconds.

An automatic die press for molding phonograph record disks is also pictured. In this press the application of hydraulic pressure, and the duration of steam and water circulation are controlled by the valve mechanism operated by a foot-lever. These automatic features regulate timing the heating and cooling of the dies. The length of time for pressing a phonograph record is 45 seconds.



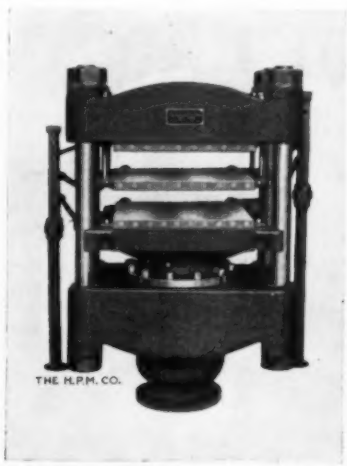
Southwark Foundry & Machine Co.

Hydraulic Platen Press



The Watson-Stillman Co.

Automatic Die Press



The Hydraulic Press Mfg. Co.

Hydraulic Molding Press

Conducting Physical Tests on Rubber Products[1]

By A. H. Nuckolls[2]

THE author discusses as follows the fundamental factors relating to the physical tests most generally applied under purchase specifications: (1) Tensile strength, (2) ultimate elongation, (3) recovery or set, and (4) friction or adhesion between the rubber and fabric.

Preparation of Test Specimens

FACTORS INFLUENCING RESULTS. The methods of preparation of specimens for physical tests are as important as the subsequent tests. Owing to the diversified character of rubber products from which specimens are prepared, there is no particular method generally applicable. The fundamental factors which may influence the results apply in all cases, and include surface injury, mechanical working, heating, and the form and dimensions of the specimen.

SURFACE INJURIES. Surface injury is probably the most important factor mentioned above. The tendency of rubber when under stress to tear at any point where there is a scratch or nick is characteristic. In cutting specimens to a test form, the use of a steel die will prevent rough edges. Gasoline should generally be used in separating rubber from layers of fabric. The action of the gasoline softens the friction compound, enabling the operator to remove the rubber without subjecting it to much stress. To avoid injuring the surface of the specimen, gage marks for reference in determining the elongation are best applied by means of a metal stamp having parallel blades.

SIZE AND FORM OF SPECIMEN. The sectional area is theoretically not a factor in the unit values obtained in the tension and stretch tests but in actual practice small specimens are likely to give higher results. The form of specimen now generally used in the case of rubber products made from calendered sheets

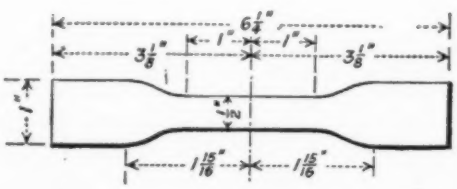


FIG. 1. TENSION TEST SPECIMEN

is shown in Fig. 1. Test analysis of this form by placing parallel lines on the ends lengthwise of the specimen and applying tension, show that very little cross stress results on account of the enlargement of the ends. A specimen of similar form having a reduced section ¼-inch wide at the center is employed where it is necessary to use a small sample, but the larger test specimen is preferable.

TUBULAR AND TANGENTIAL SPECIMENS. In case of rubber-covered wire, having a solid conductor, tubular test specimens give the best results provided the conductor is removed without injury to the rubber. Usually this can be accomplished by first stretching the conductor to its breaking point to reduce its diameter, but in some cases the rubber adheres to the stretched conductor, in which case the use of mercury is desirable. Tangential specimens have the disadvantage of being difficult to prepare and measure.

MEASURING THE THICKNESS. Measurements of thickness of specimens or in the case of tubular specimens the diameter over the rubber should preferably be made with a dial micrometer provided with a circular shoe operating under a standard pressure.

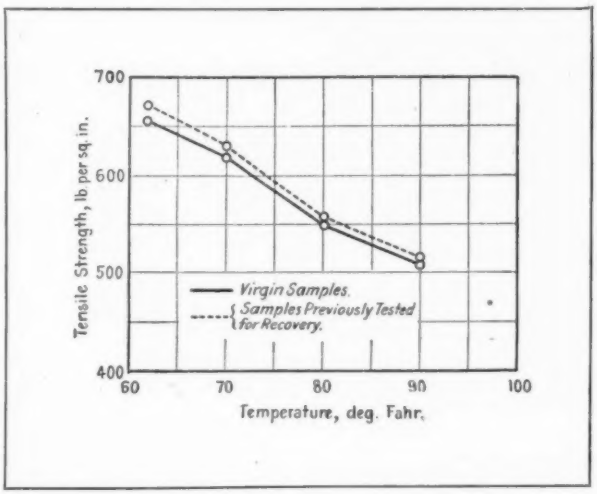


FIG. 2. EFFECT OF TEMPERATURE ON TENSILE STRENGTH—EACH POINT ON THE CURVE REPRESENTS 3 TESTS ON 14 COMPOUNDS, AN AVERAGE OF 42 DETERMINATIONS

MECHANICAL WORKING. Previous stretching within certain limits temporarily increases the tensile strength, stretch, and recovery to an appreciable extent, but on repeated stretching the rubber begins to break down. These effects vary with different compounds.

EFFECT OF BACKING. The backing usually has a lower tensile strength, stretch and recovery than the rubber tube, and if not removed retards the stretch and recovery.

DIRECTION OF CUTTING. Rubber products made from calendered sheets have a greater strength and elongation in the direction in which the rubber was rolled; that is, longitudinally. But the performance in the recovery test is better when the specimens are tested transversely; that is, across the direction of rolling.

Influence of Temperature

The temperature of the specimen at the time of test is a factor generally recognized as influencing the results. Usually, through the range 60 to 90 degrees F., the tensile strength decreases as the temperature increases and the amount of stretch at break may increase as the temperature rises. Within this range the performance in the recovery test is usually better at about 80 degrees F. Different rubber compounds are not affected by temperature, particularly in respect to the stretch, to the same extent, and it is believed to be impracticable to satisfactorily employ a correction factor. The results of a series of tests conducted at the Underwriters' Laboratories is presented in Fig. 2.

The effect of temperature on the stretch varies more with dif-

[1] Paper presented at the Twenty-Fifth Annual Meeting of the American Society for Testing Materials, Atlantic City, New Jersey, June 26-30, 1922.

[2] Chemical Engineer, Underwriters' Laboratories, Inc., Chicago, Illinois.

ferent compounds than does the tensile strength, which may be roughly taken, in the case of vulcanized compounds, as 1 per cent loss per 1 degree F. rise in temperature within the range 60 to 80 degrees F., although the effect on the tensile strength and stretch is somewhat greater through the range 70 to 80 degrees F. than between 60 to 70 degrees F. In the case of compounds containing unvulcanized rubber, such as those used for tape, the temperature effect is much greater.

As rubber is a poor conductor of heat, some time should be allowed for specimens to reach the temperature of the testing

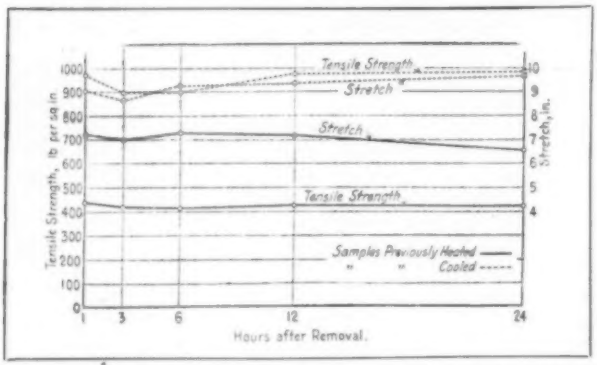


FIG. 3. RESULTS OF TESTS TO DETERMINE THE LENGTH OF TIME REQUIRED FOR SPECIMENS TO REACH ROOM TEMPERATURE

room. Where the difference in temperature does not exceed approximately 50 degrees F., one to three hours appear to be sufficient in the case of small specimens. The results of two series of tests conducted in the testing room at a temperature of 70 degrees F. showed no material changes in the performance of specimens on increasing the interval from 1 to 24 hours from the time the samples were brought in from an outside temperature 50 degrees F. higher in one case and 50 degrees F. lower in the other. The results are presented in Fig. 3.

These samples do not represent all the types of rubber compounds met with in practice but indicate that in general, any lag in the change in the tensile strength and stretch with temperature is practically negligible after 2 hours. Cases have been reported where peculiar compounds were encountered having a lag apparently exceeding 18 hours.

Influence of Rate of Separation of the Jaws

The speed at which the jaws of the testing machine are separated determines the rate at which the rubber is stretched but not entirely the rate of application of the load. The rate of application of stress depends also on the nature of the compound.

The influence of the rate of separation of the jaws on the breaking strength is the resultant of these two factors. The resultant is usually toward higher values for both tensile strength and ultimate elongation as the speed of the jaws increases, but varies with different rubber compounds. Within practical limits it seldom amounts to much.

In the testing of rubber, the elongation factor has been eliminated by the general adoption of a standard speed of stretching of 20 inches per minute, which is not only convenient but satisfactory for practical test purposes. This does not eliminate the variable which depends upon the rate of applying the stress as that factor also depends upon the compound. It will be a constant in any series of tests of a given lot of rubber.

Friction Tests

In friction tests, the effect of temperature is the principal factor in the test conditions influencing the results. The rate of separation between layers of fabric and rubber when subjected to tension is not proportional to the load applied. No separation may occur up to a certain point on increasing the load, after which the rate of stripping may increase very rapidly with additional loading.

Two methods of test are in general use. In the case of air and steam hose, the test specimen is fitted on a mandrel and one end of the fabric separated from the rubber to permit attaching a grip from which a prescribed weight is suspended vertically and the distance through which separation of the rubber and fabric takes place in a given time is observed.

In the case of fire hose and belting, one separated end of the fabric is clamped in a stationary grip and the other end in a suspended grip attached to the prescribed weight hanging vertically. In the latter case, the angle of separation is less than in the tests with a mandrel and the test is somewhat more severe for a given load.

Testing Machines

TENSILE STRENGTH AND RECOVERY. The machine used for tensile strength and elongation tests should be power-driven and of the inclination-balance or pendulum type except that when the loads are small, say under 50 pounds, a spring balance type may be used if provided with calibration apparatus and a device which will register the maximum load obtained. Movable elongation pointers provided with a graduated scale are essential. The accuracy of the readings should be within ± 1 per cent. Grips of the eccentric disk type are well adapted for testing specimens with enlarged ends. Grips of the type which consist of two steel rolls, give very good results in the testing of tubular specimens.

STATEMENT OF THE INDIA RUBBER WORLD

Statement of the ownership, management, etc., required by the Act of Congress of August 24, 1912, of THE INDIA RUBBER WORLD, published monthly at New York, N. Y., for October 1, 1922.

State of New York, } ss.:
County of New York }

Before me, a notary public in and for the State and county aforesaid, personally appeared E. M. Hoag, who, having been duly sworn according to law, deposes and says that she is the business manager of THE INDIA RUBBER WORLD, and that the following is, to the best of her knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher, The India Rubber Publishing Co., 25 West Forty-fifth Street, New York City.

Editor, Henry C. Pearson, 25 West Forty-fifth Street, New York City.

Managing Editor, Henry C. Pearson, 25 West Forty-fifth Street, New York City.

Business Manager, E. M. Hoag, 25 West Forty-fifth Street, New York City.

2. That the owners are: (Give names and addresses of individual owners, or, if a corporation, give its name and the names and addresses of stockholders owning or holding 1 per cent or more of the total amount of stock.)

The India Rubber Publishing Co., 25 West Forty-fifth Street, New York City.

Henry C. Pearson, 25 West Forty-fifth Street, New York City.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by her.

E. M. HOAG, Business Manager.

Sworn to and subscribed before me this 30th day of September, 1922.

(Seal) FREDK. SPRENGER,
Notary Public, Westchester County.
Certificate filed in New York County.
(My commission expires March 30, 1924.)

Soft Rubber in Radio Equipment

Vibration Absorbers—Rubber Insulated Wires—Ear Cushions and Voice Masks—Tubing for Buss Bars and Head Sets—Battery Gaskets, Vents and Seals

ACCORDING to radio manufacturers, nearly a million outfits have already been sold. It is further estimated that the market will absorb something like 11,000,000 sets. While, therefore, at first blush the use of soft rubber would seem to be negligible, when the varied uses are considered as an aggregate, the total is quite large.

Hard rubber is most essential, and is sure to be in increasing demand for the best equipment, no small part, however, will be played by soft rubber. At first its use was confined largely to feet for cushioning sockets for receiving or transmitting audions or vacuum tubes. Such feet are very short, cylindrical sections of highly resilient compounded stock and are usually affixed to the socket or multiple-socket stand by means of a small bolt, the head of which is in a recess about half way between the base of the foot and the socket. Not only do the soft rubber feet render a valuable service in safeguarding the supersensitive instrument from vibrations, but the feet also insure perfect insulation for the audion.

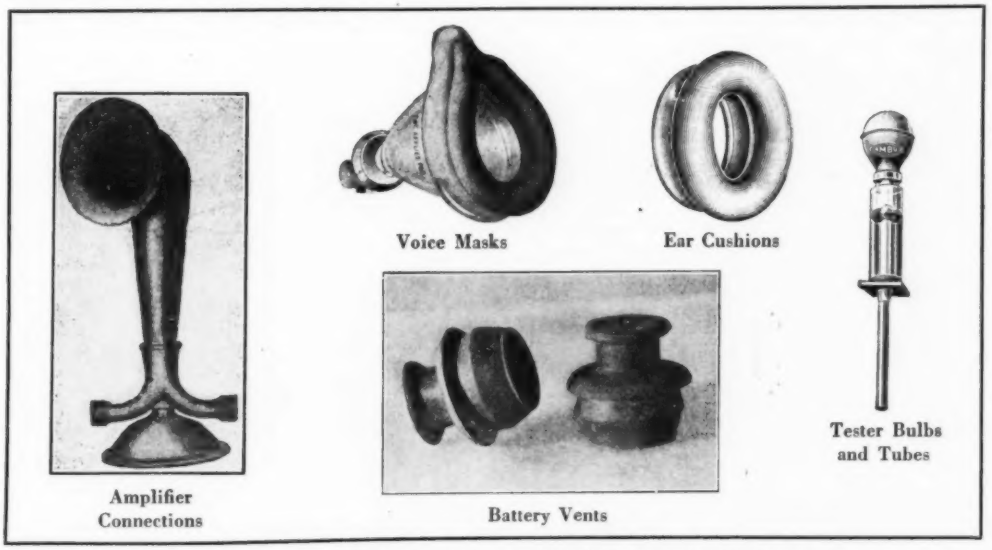
Soft rubber is used considerably in the insulation of wire used for so-called radio cords, for wires used in charging batteries, and as a coating for leads from the bare copper antenna wire, as well as for many other connections, fixed and flexible, where ample insulation is essential.

Soft Rubber Ear Cushions

In order to exclude room or other distracting noises, many radio users employ light-weight soft rubber pads or cushions which fit snugly over the cap of a telephone receiver. Some makes are designed not only to shut out undesired sounds and to lessen the fatigue or discomfort experienced in wearing headsets, but also to amplify or accentuate the sound vibrations from the telephone diaphragm, the hollow space or tone chamber being so arranged as to convey the sound to the most sensitive part of the ear.

A very interesting development in the line of soft rubber ear cushions was developed in connection with the use of radio for airplanes. There the cushions were not only made pneumatic but also of sponge rubber, thus effectively barring all vibrations.

Many radio users prefer to construct their own loud speakers or to utilize various horn-shaped or megaphone contrivances sold in competition with patented loud-speaking instruments. Devices made of soft rubber are marketed which on one side fit over the cap of a telephone in the same way as an ear cushion, but on the other side are so tapered or truncated as to fit over a tube forming the mouthpiece of the megaphone. Sometimes the latter has a double or yoke-shaped mouthpiece to which the two telephones of a headset can be attached by means of the soft rubber "protectors," as some makers style them. It is claimed that such connections have an advantage over metal attachments and not only overcome vibrations but add clarity to the tones emitted.



Typical Examples Showing the Use of Soft Rubber in Radio Equipment

A similar funnel-shaped soft rubber device is used for attaching an ordinary telephone or a radio telephone receiver to the reproducer on a phonograph so that the sounds may be audible to a roomful of people. Some amateurs make a cone of sealing wax or similar material and fasten the flaring end to the telephone earpiece, the smaller end being attached to the phonograph arm with an inch or two of soft rubber tubing having a 5/8-inch bore.

For talking into radiophones there is also a soft rubber mask which fits over the bridge of the nose and the lower part of the mouth, touching lines of the face. This is placed over the receiver and is not only sanitary and comfortable but concentrates the tone and prevents vibration.

Soft Rubber Tubing in Radio

Soft rubber tubing finds much use in radio equipment. Instead of employing several expensive headsets or duplicating 'phones when a number of persons wish to "listen in" on one receiver, several soft rubber tubes of narrow caliber are attached to the receiver. Each tube has at its farther end a "Y" of hollow hard rubber, with several inches more of soft rubber, and finally hollow hard rubber tips which set in the ears, much after the fashion of listening tubes formerly used on phonographs.

Instead of using mercerized cotton braid, some makers of headsets cover the heavy spring wire in the headbands with soft rubber tubing. The latter is preferred by radio users because it is much softer, more comfortable, and more sanitary, is easier to clean, and does not absorb oil from hair or scalp like the textile covering on wire.

An important use for soft rubber tubing is found in covering the buss bars in control units and in protecting the tinned copper wire used in such instruments, as well as insuring in the connections the lowest possible resistance. It is sometimes known as "spaghetti tubing," black or yellow.

The pure gum tubing used in some of the higher grade radio instruments is of various sizes. Some of it has an outside diameter of 1/16-inch and an inside diameter of 1/32-inch, and averages about 258 feet to the pound. Or it may be a ⅛ by 3/64-inch size weighing about 94 feet to the pound. In larger installations the pure gum tubing may be ¼ by 1/16-inch, weighing about 39 feet to the pound.

Where red tubing is used, the sizes and weights may vary from 1/16 by 1/32-inch with 200 feet to one pound; ⅛ by 1/32-inch with 120 feet to one pound; to ¼ by 1/16-inch with 30 feet to one pound.

White tubing for radio apparatus may range in size from 1/16 by 1/32-inch with 126 feet in one pound; ⅛ by 1/16-inch with 31 feet in one pound; to ¼ by 1/16-inch with 18¾ feet in one pound.

In addition to the present use of tubing there is said to be a definite call for a tubing that will cover No. 14 wire. This is weather-proofed at the present but radio men have a very decided preference for rubber.

Soft Rubber in Radio Batteries

Soft rubber also finds a very definite use in connection with batteries. These uses consist of foot cushions, insulating washers, and gaskets, and acid-proof soft rubber seals surrounding the posts. Soft rubber vents are also largely used.

The Westinghouse Company when, for example, they install a row of audion bulbs, attach strips of soft rubber at each end to the bakelite base to secure an adequate cushioning effect.

Speaking of batteries one should not forget the hydrometers and the bulb fillers where soft bulbs and tubing are used.

SCANDINAVIA IMPORTS MORE AMERICAN TIRES

In our tire export trade the Scandinavian countries are playing an important and interesting part. Denmark, for example, who in 1913 purchased from us automobile tires valued at approximately only $15,000, had, during the calendar year 1921 increased these imports to $258,630. Already, for the first half of 1922, Denmark has bought from us automobile tires valued at $302,631, an amount, it will be noted, considerably greater than for the entire year of 1921. Norway, during the corresponding period of 1922 has, at $278,189, almost equaled her figures for tire imports from us for the entire calendar year of 1921, or $284,487, while Sweden, during these first six months of 1922, has bought from us automobile tires valued at $392,137, her 1921 imports of these from the United States totaling only $510,247.

In each case a steady increase during 1922 is evident. Norway's January imports, at only $5,055, rose to $91,345 for the month of April, outstripped only by those of England and Cuba, respectively, while those of Denmark grew from $15,348 in February to $77,287 in April. Sweden, buying from us in February of this year automobile tires valued at only $21,179, took, in June, goods of this kind valued at $134,971, thus occupying for that month the second place on the list, surpassed only by England. Such figures indicate not only a more promising condition in European affairs in general, but also point to great possibilities for our export trade.

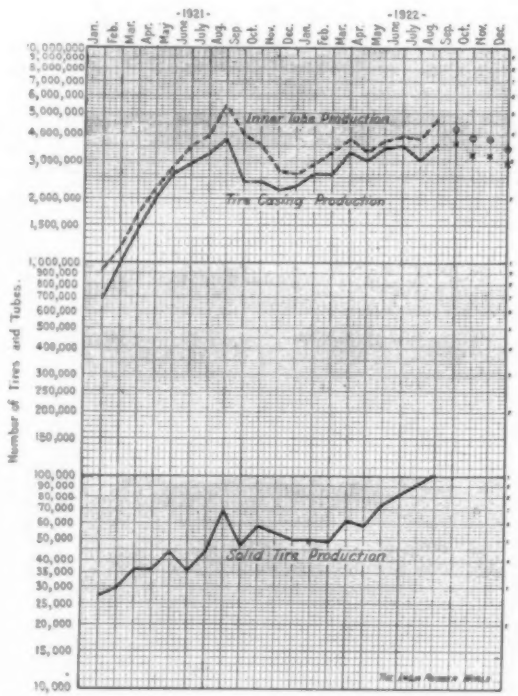
Tire and Tube Production for 1921-1922

The curves charted in the accompanying graph represent the number of pneumatic casings, inner tubes and solid tires, manufactured in the United States during 1921 and 1922.

The horizontal ruling of the chart is ratio spacing of three decks or cycles covering production ranging from 10,000 to 10,000,000 units. The curves are thus comparable as to totals of casings, tubes, and solid tires produced and show some interesting results.

The anticipated seasonal decline of casing and tube production is indicated for the last four months of 1922.

A reliable authority has stated that America's present tire production capacity is probably not far from 44,500,000 yearly. That this estimate is conservative is shown by the fact that



Production Comparison of Tires, Tubes and Solid Tires by Months, 1921-1922

peak production in August of 1921 exceeded that rate by 1,000,000 tires, and in August, 1922, it came within the same number below it.

In no month during the present year has the rate of tire production fallen below 70 per cent of the estimated full capacity and in August it reached 98 per cent. For the first eight months the average was 84 per cent compared with 50 per cent for the corresponding period of last year.

The output of inner tubes naturally exceeds that of tires in point of numbers. In 1921 this excess varied between the limits of 5 and 18 per cent, averaging about 9½ per cent. In 1922 the range was from 10 to 31 per cent and averaged 18 per cent.

Pneumatics, tubes, and solid tires exhibit greatly improved production results for the 20 months covered by the graph. These increases over the productions noted for January, 1921, are for tire casing 310 per cent, for tubes 410 per cent, and for solid tires 90 per cent. Solids show less marked seasonal changes than casings and tubes and at the present time have reached the high of 100,000 for last August which is far in advance of the peak in August a year ago.

Scientific Fabric Cutting

Types of Fabrics—Handling Uncured Stock—Tabling—Cutting

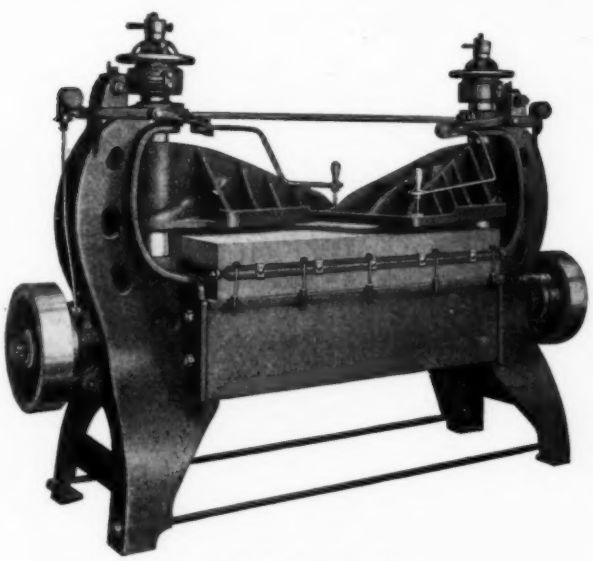
ALMOST every line of rubber manufacture has a vast deal of fabric cutting to do before the goods are made up. In spite of the fact that druggists' sundries differ widely from mechanical goods, footwear from tires, in methods of manufacture, waste of material is as costly in one as in the other. Furthermore, as the basic processes are similar, the following outline of scientific cutting in rubber shoe work is broadly informing.

Service and accuracy are the two requisites of a successful fabric cutting department in a rubber footwear factory. To attain these it is necessary for the department to have sufficient equipment and a proper layout. The best location is on the second floor directly above the mills and calenders. It is the next step in the sequence of operations, and such a location affords economy in the handling of materials and waste which is a large item amounting to over 3,000,000 pounds per year in a medium-sized plant.

Various Kinds of Fabrics

Various kinds of coated, skimmed, and frictioned fabrics are received in the department from the calenders and dryers prior to being plied up for cutting into the various parts of the rubber shoe from a slip-on foothold to the hip boot.

First, there are stockinette linings dyed various colors, coated with rubber compound, and wound on drums about 2 feet in diameter and 5 feet long. In this class of material belong woolen linings, usually wound in a liner to prevent the face from sticking to the gum when "green," and jersey and cashmerette cloth for overshoes. Insoling which consists of a lightweight sheeting, dyed



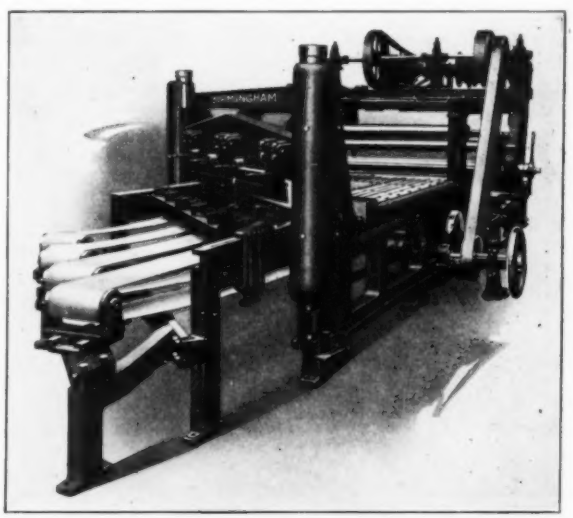
U. S. M. Clicking Machine

or undyed, coated with ⅛ to ¼-inch of rag compound (mixture of unvulcanized clippings, reclaim, and fillers); filler, usually a sheeting frictioned one side and coated with rag; and plain sheets of rag without cloth of different gages. These represent another class of material. A third division comprises heavier weight sheetings such as osnaburgs and boot ducks, usually frictioned on both sides and wound in a liner. The fourth class comprises fabrics for tennis shoes and their linings which do not pass through the calender departments, but come direct from the drying room where they are inspected, sometimes dried and wound on mandrels.

Aside from these there are various combinations of fabric and rubber, both frictioned and skimmed, such as the strip stock for reinforcing the sole and upper of "sneakers," shield stock for gussets of all-rubber gaiters, special insolings made of combinations of felt, cork, and other substances.

Handling Uncured Fabric Stock

Special care must be exercised in handling unvulcanized rubberized fabrics as they are liable to become wrinkled, pressed, or stuck to liners and mandrels. To prevent this, the calender room,



Birmingham Bias Cutter

elevators, and cutting department should be equipped with an overhead trolley system and chain-hoists by which the rolls are lifted from the calenders and conveyed to the elevator and thence to the stock racks in the cutting room without rehandling.

The stock racks consist of a series of horizontal iron grooves 10 feet long, 4 feet high, and at the proper width to accommodate the rolls. As it is advantageous and necessary that the oldest rolls be used first, they are racked in rotation, the rolls first run being taken out at the other end as needed. Certain fabrics such as tennis ducks do not need to be racked in this manner and can be stored on end in adjacent bins.

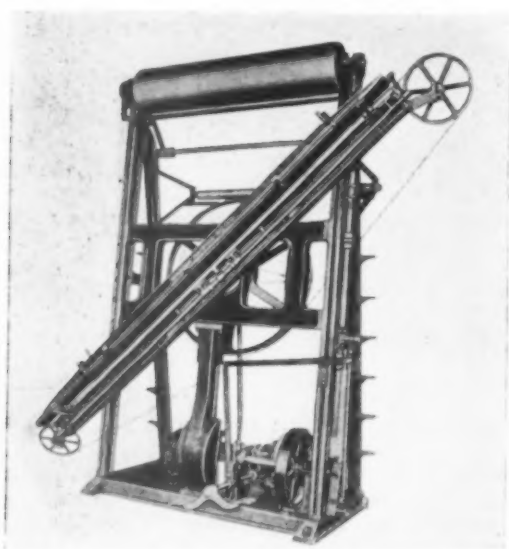
A stock room record should be kept showing the amount of each material on hand. The rolls are tagged with the date, style of goods, weight, and yards in the mill department as run. For this purpose all calenders are equipped with measuring clocks and overhead scales. A perpetual inventory can then be kept in terms of yards, preferably, as weight is apt to vary somewhat from specifications, each roll being entered as it is received and the amount of yards issued deducted. This can readily be computed from the doubling report, the length of tables and number of plies being standard. This inventory must be filed with the planning office daily in order that deductions can be made from each day's running.

Tabling for Cutting

After the stocks are received and given the proper amount of aging, the next step is tabling for cutting. This is done by two methods, hand and machine doubling drum. The hand method consists of unrolling and cutting off with a knife sheets of stock of a given length until the desired number of plies is obtained. This method requires two men, and while slow, is nevertheless economical of stock when properly done, and does not stretch, wrinkle, or strain the fabric. On doubling tennis fabrics some mills eliminate a man by the use of a movable carriage which grips the cloth and moves up and down the table on two rails.

The machine doubling drum is a factory-built device consisting of a revolving drum, the circumferance of which is the length of a table of stock, usually standard at 16 to 20 feet. It is equipped with two friction-clutch wind-ups, one for unrolling the stock, the other to roll up the liner. It uses motor drive and is started and stopped by means of a tight-and-loose pulley device. A third pair of sockets accommodates a roll of separator paper which is doubled between the plies of frictioned stocks to prevent adhesion.

The drum is equipped with a counting device similar to that used on printing presses, and when a table of net is desired 40 thickness or plies, the roll is inserted in the wind-up, the end fastened to the drum which is then revolved 40 times, and the stock cut off on the same line where it was started. This gives a table of stock wound very tight, but it has the disadvantage of wrinkling when laid out flat for cutting, as the top ply will be longer than the bottom one by a few inches.



Spadone Bias Cutter

Nevertheless on account of its speed and general adaptability the drum is still largely used for tabling wool, nets, frictions, and strip stock, while the hand method is used for tennis, filler, insole, rag, and heavier, more unwieldy stocks. Some mills are equipped with a doubling drum for each cutting machine, but this involves tying up capital in equipment which is idle three-quarters of the day. According to the best plant layout, all that is necessary is one machine drum on a track line running directly in the rear of the cutting machines. After a table is doubled, the drum is moved along to the cutter's machine for which it was ordered, and the stock cut off and slid on to his table without rehandling or extra labor.

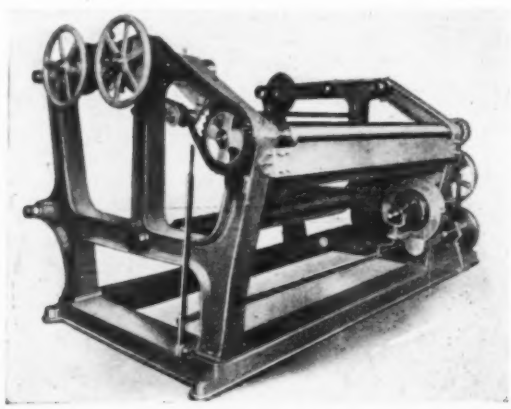
The tables on which the stock is placed for cutting are constructed at an angle, the end furthest from the machine and next to the drum being about 3 feet higher. This allows the stock to pass from the drum to the table by the aid of gravity and several small rollers, which also makes it easier for the cutter to pull his stock toward him after making a row of cuts across.

Cutting Methods

There are five methods of cutting now used; beam press machines; clicking machines; back hand; electric knife; and die and mallet.

The beam press is the old reliable machine for punching out parts of rubber footwear. It consists of a head plate, block, and foot-pedal, pressure upon which engages the shaft wheel and causes the head to make downward and upward stroke on the die which cuts out the part. The wooden cutting block, which is composed of short pieces of hard wood placed on end and clamped together, is on a movable stand that can be regulated up or down by means of turn-screws on either side. This machine is especially suited for heavy work or large patterns with either handle or hand dies and will cut up to fifty thicknesses on some classes of work. It is speedy to operate but usually requires a boy helper to attain maximum results. Its disadvantages are: the inability of the operator to see his work clearly and arrange his patterns to the best advantage, the weight of the dies which prevents opening up the cuts, and the liability of accident.

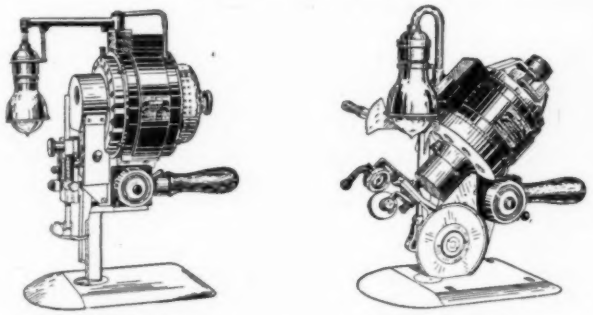
The single and double clicking machines are used for lighter classes of work. They consist of one or two swinging arms which operate with a hand lever. The drums are swung in position after the die is placed and pressure on the lever makes the cut. The clicker is a light machine, absolutely safe, easier to operate, and enables the operator to see his work more clearly and plan the lay-out and arrangement of his dies so that it is more economical in cutting stock. This saving offsets the disadvantage of slower production due to cutting fewer plies. The dies are lighter, hence less expensive, but unless handled carefully they are liable to spring out of shape. The same type of cutting block is used as on the beam press but instead of being regulated by a movable stand, the height of the cutting drums can be changed with the same results.



Double Stripper for Spadone Cutter

Back hand cutting is the old time method of cutting with knife and tin pattern which is placed upon the stock and the parts cut out with a sharp-pointed knife. It is a fairly economical method but an extremely slow one as only a few thicknesses can be cut at a time. It is also productive of inaccurate work due to slipping of the pattern. Hand cutting today is confined to patterns which are seldom used or to new shoes before the dies are made, and occasionally to patterns which are too large and unwieldy to be cut by die.

Electric knife cutting is used for cutting linings, the patterns of which interfit so closely that they can be cut practically without scrap except on the edges. A paper lay-out with perforated lines for chalking is laid on the table of stock dusted with talc and the parts cut out by means of a portable cutter with electric motor attached. This type of cutting machine is used mostly in the clothing industry.



STRAIGHT KNIFE CIRCULAR KNIFE

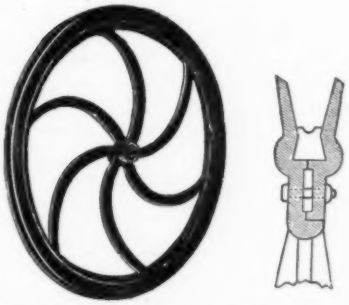
Eastman Cloth Cutters

Cutting with mallet and die is used for small parts which are usually cut from scrap or side pieces.

Rubber Sheave Filling

Rope Transmission

Where belt or line shafting transmission of power is too long to be used profitably, rope transmission comes into use. In point of economy it is much cheaper than its equivalent in either belting or shafting. By this method power can be conveyed in any direction, up or down hill, across rivers, around buildings or obstructions of any kind. The ropes hang free in the air, running smoothly and noiselessly on rubber, leather or wood filling in special sheave pulleys.



Sheave and Rim Cross-Section

This method of transmission can be applied with great profit and economy in practically every instance where the distance exceeds 100 feet and in many instances when the distance is as short as 50 feet. The main feature, however, is distance and the farther the power is to be transmitted, the better are the results obtained under this system.

Rubber Filling

The function of the filling for the groove of sheaves for power transmission is to afford a body to give the rope the necessary grip under all conditions, yet resist its wearing action and the deteriorating influences of weather exposure. Leather and wood are suitable for indoor use but rubber filling is better than either for all-around exposures.

A typical rubber power sheave and cross-section of the rim are here shown. The diameters of these sheaves vary from 18 inches to 12 feet and length of corresponding fillings from about 5 feet to 38 feet.

It is customary to mold rubber sheave filling in short lengths to be cut to fit in use. A tough stock is selected, always containing reclaim and a proportion of fiber, yet plastic enough to shape by the tubing machine to fit the mold.

A stock for filling should be well cured to hold its shape under clamping pressure in the sheave and to resist the friction pull of the rope.

The following typical stock for this purpose represents actual practice and illustrates the use of reclaim for the purpose.

FORMULA FOR SHEAVE FILLING

Shoe reclaim	28
Tire reclaim	20
Ground cured black scrap	10
Unvulcanized friction fiber	10
Barytes	30
Sulphur	2
	100

Handling Logs in a Southern Cypress Swamp

FLEXIBLE RUBBER VARNISH PAINTS

Varnishes and varnish paints for use on soft rubber surfaces require special care in manufacture to make them suitable for use on such articles as hollow rubber balls. Such paints and varnishes must adhere firmly and maintain a high degree of flexibility for an indefinite time so that the film will not alligator or crack or peel off in service.

Flexible varnishes are furnished in the clear and in various colors such as red, blue, green, brown, gray and white. The varnish is supplied in a consistency for dipping and can be thinned for spraying by addition of ordinary gasoline. It is air-drying, hardening in 12 to 15 hours at ordinary temperatures, or it will dry in three to four hours at 100 degrees C. (212 degrees F.).

The long time required for this varnish to air-dry is advantageous because the film is then highly flexible. The addition of metallic driers to hasten the drying renders the film more or less brittle and subject to cracking.

In ball painting it is suggested to apply the coat by dipping or spraying late in the afternoon and allow the goods to stand over night to dry. Used in this way the varnish film will remain on the rubber surface without cracking through the entire life of the goods.

BOLIVIAN RUBBER QUIET

The rubber industry of Bolivia remains inactive. The last of the large plantations in the Province of El Beni and in the territory of the colonies of the northwest have ceased operation. An endeavor is being made to grow gutta percha in place of rubber in this area.

What the Rubber Chemists Are Doing

The Dithiocarbamate Accelerators of Vulcanization[1]

By D. F. Twiss, S. A. Brazier, and F. Thomas

THE need for organic vulcanization catalysts was first experienced in connection with synthetic rubber, which is notably sluggish in vulcanization. Doubtless there had been early independent application of such "accelerators" to natural rubber[2] but the earliest public description of this class of catalyst emanated from sources interested in the production of synthetic rubber. During the years 1915—1918 the production of synthetic rubber in Germany received an extraordinary stimulus, and two organic compounds in particular appear to have been applied to expedite its vulcanization. These were the additive compound of aldehyde and ammonia, or "aldehyde ammonia," and the additive compound of piperidine and carbon bisulphide, or piperidine piperidyldithio-carbamate, which were termed "Vulcacite A" and "Vulcacite P," respectively[3]. These two substances are of especial interest as representing a marked contrast in character and exhibiting a striking difference in their behavior towards rubber in vulcanization.

Aldehyde ammonia, the use of which was first described in the patent literature of 1914[4], accelerates strongly the chemical reaction between rubber and sulphur and does not need the additional presence of other substances for the full development of its power. On the other hand, piperidine piperidyldithiocarbamate, the use of which and of analogous compounds derived from other aliphatic bases first finds mention in 1912[5], although a fairly strong accelerator in a plain mixture of rubber and sulphur, becomes much more powerful in the presence of zinc oxide[6].

Our own experiments with piperidine piperidyldithiocarbamate, early showed the marked difference between the effect in the absence and presence of zinc oxide and, in the latter case, the need for great care to prevent vulcanization during the mixing operation. Experiments made using the accelerator in the form of a stock mixing with rubber of which a proportionate weight was taken for including in the final experimental mixing, proved of little help, and it was found more convenient and satisfactory to introduce the catalyst after the incorporation of the sulphur and zinc oxide, the mixture being kept as cool as possible.

The report of the present investigation covers the effect on the vulcanization time and tensile properties of different percentages of piperidine piperidyldithiocarbamate with and without zinc oxide; the effect of zinc oxide; diethylamine diethyldithiocarbamate, and tetramethylthiouram disulphide with zinc oxide. This valuable investigation is too extensive for quotation in full but a few excerpts and the authors' comments in discussion are given.

Zinc oxide in mixings containing piperidine piperidyldithiocarbamate has a remarkable influence on the rate of vulcanization, thus presenting a marked contrast to the relatively small effect of zinc oxide on aldehyde ammonia[7]. A contrast, less marked, is also observable between the effect of these two accelerators in that the conjoint effect of zinc oxide and the dithiocarbamate accelerator induces abnormally high tensile strength in the vulcanized rubber.

Experimental results indicate that for a mixture containing sufficient zinc oxide a fall of 10 degrees in the temperature necessitates a period of vulcanization two to two and one-half times as long; this value is comparable with that found for the "temperature coefficient" of vulcanization of simple mixtures of rubber and sulphur, and also of such mixtures containing simple accelerators in the form of aldehyde ammonia[7] or of piperidine piperidyldithiocarbamate without zinc oxide[8].

The influence of zinc oxide in intensifying the action of the accelerators is cumulative, increasing markedly with the proportion of this ingredient. It is remarkable that the elongation at 0.5 kg. per sq. mm. at the maximum tensile strength in all those mixings containing zinc oxide, approximates to 500 per cent. This value is distinctly lower than the corresponding value at the "optimum cure" of plain mixings or those containing aldehyde ammonia; for these the figure is approximately 650 per cent.

The strikingly abnormal course of the effect of vulcanization in the presence of certain organic accelerators and a small proportion of zinc oxide, is indicative of a preliminary activation of part of the sulphur and a subsequent "depolymerization"[9] effect on the rubber. The latter is probably caused by a decomposition product of the accelerator. The phenomenon, however, appears to be definitely unfavorable to the recently expressed opinion of M. Le Blanc and M. Kröger[10], whose interpretation of their experimental results includes an assumption that organic accelerators exert their action by influencing the rubber and not the sulphur.

Dr. Twiss, in reply to points raised in discussion of his paper, said that although zinc oxide is a basic substance, it does not by itself possess any accelerative effect. The function of the zinc oxide is to enter into chemical action with the organic accelerator and thereby give rise to some particularly active substance. The possibility that oxides of other metals of higher atomic weight in the same periodic group may possess still greater effectiveness deserves further investigation. During vulcanization the major portion of an organic accelerator undergoes decomposition.

In testing the samples the load is always applied steadily, and high values observed for the tensile strength are not due to the rapidity with which the rubber is stressed. In the case of the vulcanized rubber which showed exceptionally high tensile strength, the ring-shaped test piece sustained the full load of which the testing-machine was capable for a period of ten minutes before it was finally removed.

It is of interest to know that an alkali ethylxanthate, occurring as an industrial waste product, might be available for the cheap production of zinc ethylxanthate. The application of accelerators to technical mixings was not considered in this paper.

Conclusions

The following are typical characteristics of these dithiocarbamate accelerators:

The production of vulcanized products of unusually high tensile strength. In one case a vulcanized sample withstood without breaking the highest load (100 kg.) possible with the testing machine, the corresponding stretch being 750 per cent. This stress was equivalent to a breaking load exceeding 3.4 kg. per sq. mm., calculated on the original dimensions of the test piece, or more than 18 tons per square inch on the cross-section of the stretched rubber.

---

[1] Journal of the Society of Chemical Industry, March 31, 1922, 81 T.

[2] D. Spence, The India Rubber World, 1918, 57, 881. The Journal of the Society of Chemical Industry, 1917, 118.

[3] The India-Rubber Journal, 1919, 58, 305.

[4] English patent No. 12,661.

[5] German patent No. 266,619. English patent No. 11,615 of 1913.

[6] "Plantation Rubber," G. S. Whitby, 1920, p. 199; G. S. Whitby and O. J. Walker, The Journal of Industrial and Engineering Chemistry, 1921, 13, 816; G. S. Whitby and A. H. Smith, paper read before September meeting of the American Chemical Society, 1921; D. F. Twiss, The Journal of the Society of Chemical Industry, 1921, 242 T.

[7] D. F. Twiss and S. A. Brazier, The Journal of the Society of Chemical Industy, 1920, 125 T.

[8] "Plantation Rubber," G. S. Whitby, p. 323.

[9] The term "depolymerization" for lack of a better is used throughout this paper for a change in the rubber characterized by an increase in the extensibility, and simultaneously although to a less extent, by a decrease in the tensile strength. Instead of becoming harder, as would be expected from ordinary progressive vulcanization, the rubber becomes softer.

[10] Zeitschrift für Elecktrochemie und Angewandte Physikalische Chemie, 1921, 27, 335.

The production of unusually great resistance to extension relative to the extent of the chemical change and the alteration in tensile strength.

The development of maximum tensile strength at an unusually low coefficient of vulcanization of the rubber.

The necessity of the concomitant presence of zinc oxide for full exercise of accelerative power even with the zinc dialkyldithiocarbamates. These salts consequently cannot represent the actual catalysts which must be sought in some type of decomposition product common to the zinc salts, the amine alkyldithiocarbamates, and the corresponding thiouram disulphides.

The tendency of the curve showing the alteration in extensibility (at 0.5 kg. per sq. mm.) to attain an early minimum if only a small proportion of zinc oxide is used. Under such conditions the peak in the tensile strength curve is lacking in sharpness. The effect is probably connected with the initial formation of a limited quantity of highly active sulphur, the supply of which becomes rapidly exhausted.

The fact that alkyldithiocarbamates and thiouram disulphides derived from primary amines are much less powerful than the corresponding derivatives of secondary amines.

Determination of Sulphur in Vulcanized Rubber[1]

By W. W. Dyer and Amy R. Watson

The authors have developed an analytical method for use on vulcanized rubber-proofed balloon fabrics containing usually about five per cent of ingredients other than rubber of which one to three per cent may be sulphur, but the method is applicable to other rubber products as well.

Combined Sulphur

The modification of the simple nitric acid treatment consists in the addition, in the later stages, of small amounts of potassium permanganate, to complete the oxidation in a shorter time. Since very small amounts of barium sulphate are involved great attention to the conditions of precipitation is necessary, particularly the free acidity and bulk of liquid should be kept low. While the method is intended for combined sulphur only it is satisfactory for total sulphur where the amount of free sulphur is not large.

Free Sulphur

Free sulphur is that extracted by boiling acetone. It is determined by oxidation with pure neutral potassium permanganate in acetone solution added all at once in powder form, shaken and allowed to stand one-half hour at room temperature. The acetone is distilled off and every trace removed by heating at 100 to 110 degrees C.

Concentrated hydrochloric acid is slightly in excess to bring the residue to a clear dark greenish solution, becoming colorless on heating in the water bath. This solution is diluted, and near 100 cc. ammonia cautiously added till the solution becomes slightly turbid, then is made just acid and precipitated at boiling with half normal barium chloride.

[1]The Journal of the Society of Chemical Industry, July 31, 1922, 251T.

Benzol Poisoning: Its Occurrence and Prevention[1]

Benzol poisoning by industrial processes arises, for the most part, by the inhalation of the fumes. A man breathing a mixture of benzol and air actually absorbs 80 per cent of the benzol inhaled. Experience in the rubber industry indicates that the compounds of lower boiling points are more dangerous than those of higher boiling points. This is probably due to the fact that the amount of vapor given off by the low boiling point benzols is greater and thus a larger dose is breathed by employes exposed to the material.

The methods of prevention of benzol poisoning are much more important than any other phase of the problem. The first step in the prevention of the poisoning is the physical examination of each applicant for work and the examination repeated periodically of those exposed to the hazards of benzol. In the prevention of occupational diseases the cooperation of the employe is indispensable and is the most important condition of an effective defence. The best regulations and preventive measures are worthless if the worker does not observe them.

Where benzol is used industrially as a solvent it is necessary to install general room ventilation, rather than hope to confine the ventilation to a small number of exhaust hoods. Benzol vapor is heavier than air and should be exhausted at the floor level. An air change of thirty times an hour is desirable and the flow of air toward the floor should be less than six feet per minute.

Benzol not only can be, but is being, used without danger where there is installed an efficient method of physical examination, with regular reexaminations; changing an employe's occupation as quickly as he shows either an abnormal reduction in the number of bloods cells or an unusual increase in coagulating time; together with adequate ventilation.

[1]Abstract of paper presented by Charles F. Horan, manager, Department of Hygiene and Safety, Hood Rubber Co., Watertown, Massachusetts, at the Detroit meeting of the National Safety Council, August 28-September 1, 1922.

Chemical Patents

The United States

TREATMENT OF LEATHER WITH RUBBER. A process for treating the leather for impregnation with rubber and after impregnation treating it with an element for vulcanizing the rubber embedded in the leather.—Alexander McLennan, Ross, England. United States patent No. 1,425,530.

PLASTIC COMPOSITION. An insulating composition comprising bakelite mixed with a polymerizable resin.—James P. A. McCoy, assignor to Allis-Chalmers Manufacturing Co., both of Milwaukee, Wisconsin. United States patent No. 1,425,784.

METHOD OF WORKING QUICK CURING COMPOUNDS. A method of compounding or mechanically manipulating vulcanizable rubber compositions containing accelerating substances which consist in maintaining the rubber softened to prevent substantial vulcanization while mechanically working the composition.—Willis A. Gibbons, New York, N. Y., assignor to American Rubber Co., a Massachusetts corporation. United States patent No. 1,427,283.

PHENOL FORMALDEHYDE PRODUCT AND METHOD OF MAKING. William Achtmeyer, Middletown, Connecticut. United States patents Nos. 1,429,265 and 1,429,267.

BELT DRESSING. A belt dressing made from wool grease, rubber, a solvent therefor, caustic soda and resin. Ernest B. Folsom, assignor to Pacific Mill & Mine Supply Co. both of San Francisco, California. United States patent No. 1,429,498.

COATING COMPOSITION. A surface coating composition comprising pitch derived from oils and fats, a solvent and a small percentage of rubber. A. C. Holzapfel, New York, N. Y. United States patent No. 1,430,083.

The Dominion of Canada

SELF-SEALING COMPOSITION. A self-sealing composition, for use between the walls of a patented inner tube, comprises a mixture of approximately 50 parts by weight of plantation rubber, the same of African rubber, and 9 parts by weight of resin.—J. P. Cochrane & Co., Ltd., assignee of Colin Ross Crombie, and James Beveridge Smith, all of Edinburgh, Scotland. Canadian patent No. 221,640.

MANUFACTURE OF REFINED LAMPBLACK. John and Alek Nelson, both of Glasgow, Scotland, and Helene Stovold, Maison Laffitte, Seine-et-Oise, France. Canadian patent No. 223,561.

STORAGE BATTERY BOX. This is formed of a macerated fibrous substance containing a binder and impregnated with an acid-resisting substance.—The Canadian Battery Container Corporation, Ltd., Windsor, Ontario, Canada, assignee of John M. Ahlgren, Chicago, Illinois, and others. Canadian patent No. 223,830.

VULCANIZATION OF RUBBER. A rubber derived from rubber or similar materials combined with the reaction product of an aldehyde comprising a hydrocarbon chain having a plurality of carbon atoms and an amine and vulcanized.—The Canadian Consolidated Rubber Co., Ltd., Montreal, Quebec, Canada, assignee of Sidney M. Caldwell, Leonia, New Jersey, U. S. A. Canadian patent No. 223,831.

TREATMENT OF RUBBER-CONTAINING LATEX. A process for treating latex or similar material which comprises adding a vulcanizing agent and a compounding ingredient to latex, spraying this mixture into a drying gas, precipitating the solid particles therefrom and compacting them to form crude rubber.—Ernest Hopkinson, New York City, U. S. A. Canadian patent No. 223,992.

PRODUCT OBTAINED FROM RUBBER-CONTAINING LATEX. A mixture of crude rubber, a vulcanizing agent and compounding ingredient tending to cause coagulation of latex, and a protective agent adapted to prevent such coagulation, derived from latex obtained from spraying.—Ernest Hopkinson, New York City, U. S. A. Canadian patent No. 223,993.

NITROGEN FILLED TENNIS BALLS. Sodium nitrate from 0.5 to 0.7 g. and an excess of ammonium chloride are employed to release nitrogen within the charged center of a hollow rubber ball in a mold.—The Canadian Consolidated Rubber Co., Ltd., Montreal, Quebec, Canada, assignee of Willis A. Gibbons, New York City, U. S. A. Canadian patent No. 224,029.

PRODUCTION OF THIOCARBANILIDE. The method of preparing a thiourea derivative which consists in reacting upon a paranitroso body with carbon bisulphide and hydrogen sulphide simultaneously.—The Goodyear Tire & Rubber Co., assignee of C. W. Bedford and R. L. Sibley, all of Akron, Ohio, U. S. A. Canadian patent No. 224,110.

The United Kingdom

PLASTIC COMPOSITIONS. A plastic composition resembling natural asphalt in properties and uses is made by melting together 18 kg. of india rubber and 12 kg. of resin, adding 600 g. of naphtha, benzene, turpentine, or other solvent of both rubber and resin, and incorporating with the product 100 kg. of finely powdered oxide of iron, marble, stone, brick, or ochre.—D. Sanguinetti, 671 Calle Maipú, Buenos Aires. British patent No. 181,092.

VULCANIZING INDIA RUBBER. Cylinders, autoclaves, etc., are heated by a liquid such as aniline oil other than a solution having a higher boiling point than water which is circulated between a source of heat and the cylinder, etc., containing the articles to be vulcanized. The required temperature is thus obtained at a lower pressure than that required if steam were used.—R. Wheatley, and Victoria Rubber Co., Ltd., both of Edinburgh. British patent No. 181,802.

PLASTIC COMPOSITIONS. In the manufacture of plastic compositions containing india rubber, balata or gutta percha, the filler is heated, preferably in a vacuum, to remove absorbed and occluded gases before being mixed with the binding agent. After being degasified, the filler may be impregnated with a medium which permits the formation of air films on the particles. A gas which is soluble in the binding agent, such as carbon dioxide, may be used for this purpose.—Western Electric Co., Ltd., Westminster, London, assignee of R. Williams, Roselle, New Jersey, U. S. A. British patent No. 182,422.

ARTIFICIAL RESINS. Diazo compounds are incorporated with resinous condensation products of phenols with aldehydes, or of ketones with aldehydes. The resulting materials are resinous and can be used for a variety of purposes including shellac substitute, electric insulation, etc.—H. Plauson, 14 Huxter, Hamburg, Germany, and J. A. Vielle, 17 Waterloo Place, Pall Mall, London. British patent No. 182,497.

PLASTIC COMPOSITIONS. Process for making soluble cellulose butyrate to be employed in the manufacture of plastics, transparent sheets and films, artificial silk, lacquers, dopes, and artificial leather.—A. D. Little, Inc., Cambridge, assignees of G. J. Esselen, Swampscott, and S. H. Work, South Boston—all in Massachusetts, U. S. A. British patent No. 182,820.

PHENOL-FORMALDEHYDE CONDENSATION PRODUCTS. F. B. Dehn, 53 Doughty street, London; S. Satow, Tokio, Japan. British patent No. 182,886.

SELF-HEALING INNER TUBE. A mixture consisting of masticated rubber, Canada balsam, vaseline and manilla elemi gum is arranged within the tread portion of the tube or completely around the space between the inner and outer walls.—A. J. Ostberg, East St. Kilda, near Melbourne, Australia. British patent No. 183,426. (Not yet accepted.)

VULCANIZERS AND VULCANIZING. An alloy which melts at about 145 degrees C. and remains at this temperature until completely solidified is employed for imparting heat to a vulcanizer.—B. Lambert, 197 Woodstock Road, Oxford. British patent No. 183,590.

PHENOL-FORMALDEHYDE CONDENSATION PRODUCTS. D. G. Anderson, Booth Place, Falkirk, and R. Maclaurin, Homesteads, Stirling. British patent No. 183,629.

SYNTHETIC RESINS. Synthetic resins formed by the direct action of acetylene on phenol or its homologs in the presence of acid and a mercury salt.—Shawinigan Laboratories, Ltd., Montreal, Canada, assignee of J. A. Nieuwland, Notre Dame University, Notre Dame, Indiana, U. S. A. British patent No. 183,830 (Not yet accepted.)

Germany

Patents Issued, with Dates of Issue

359,378 (December 7, 1920) Plastic mass. Marcel Guignard, Paris; represented by R. Scherpe, Charlottenburg.

360,782 (September 2, 1917) Method for regenerating old rubber and rubber goods. Dr. Gustav Benwit, Clausewitzstrasse 3, Charlottenburg.

361,429 (May 13, 1917) Method for manufacturing rubber-like products. Hermann Plauson, Wandsheker, Chausser 17, Hamburg.

CONCENTRATED MIXTURES OF GAS BLACK AND RUBBER

Welcome relief from the well nigh unbearable conditions of every rubber mixing room where gas black is compounded may now be obtained by employing the concentrated mixtures of gas black and rubber which are prepared to rubber manufacturers' specifications.

The most popular mixture of this sort is two parts of rubber to one of black. In special cases equal parts of rubber and black with a small amount of softening ingredients are mixed, although not recommended, owing to difficulty of getting proper dispersion.

The use of these concentrated mixtures makes it possible to keep the mill room free from gas black dust and the combination will not blacken the mill upon which it is used, thus obviating all difficulty in using the same mill for other colors.

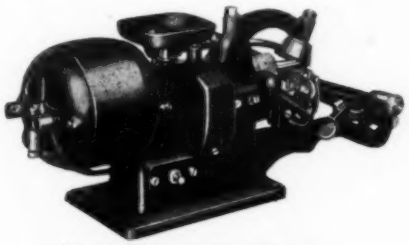
SILURIUM

Silicon converted from the crystalline to the colloidal state by catalyzing can be added to rubber, sulphur, and asphalt combinations, forming the base of a new material called Silurium. It is claimed that this product imparts to rubber increased ability to withstand atmospheric conditions, oils, greases, and acids, making it well adapted for battery cells, tool handles, etc. It can be made in colors other than black.

New Machines and Appliances

Sole and Heel Trimming Machine

A NEW bench machine for trimming rubber heels, soles, and various other molded soft rubber goods is here pictured. It has been especially designed for trimming the product economically and accurately at one operation.



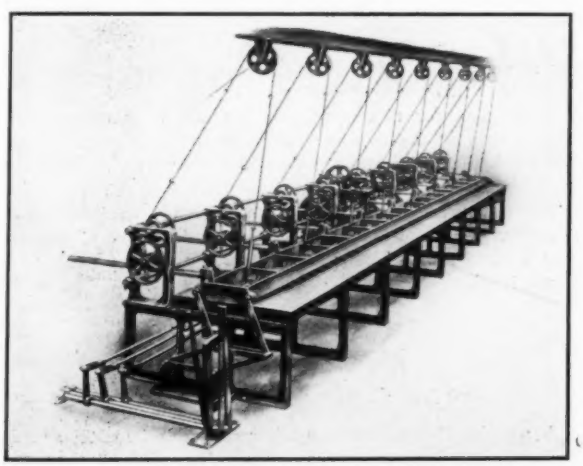
Model B Bench Heel Trimmer

The machine is compact with all working parts enclosed. It employs two rapidly rotating, flat-edged knives that cut by a shearing action, producing a clean smooth cut close to the trimmed edge. The knives are of rugged construction and due to their flat cutting edges greatly outwear the razor-edge type. Dull knives are easily replaced and the adjustments are few and simple.

The perfect protection which the machine affords to the operator and the work eliminates all hazard of injury to either, which means increased production. The work table is controlled by foot-operated treadles and is adjustable perpendicularly and at any angle. This construction, in combination with the specially constructed knives, makes possible the accurate trimming of unusual shapes and short radii. The machine is built in two types: Model A for factory power and Model B with motor drive.—United Shoe Machinery Corporation, Albany Building, Boston, Massachusetts.

Packing Rolling Machine

The illustration shows a moving table machine designed to roll up round duck or Tuck's packing with or without a central rubber core.



British Packing Rolling Machine

The machine consists of a fixed cast-iron table on which the strip of bias-cut duck is placed, and a moving top cast-iron table which carries out the rolling operation. This table has three movements: Lowering to make contact with the material to be rolled, a forward movement which effects the rolling operation, and a reverse movement to its original position.

In operation, the material is placed on the fixed broad table and the fabric given one turn over the core by hand so as to place it in position ready for rolling up. The actual rolling takes but a few seconds and the output of the machine therefore is very great. All the movements are operated by levers at the left of the machine. An even pressure is maintained throughout the whole length of the packing, thus insuring uniformity of the finished product.

The machine of latest design is entirely self-contained, and the pulleys and balance weights shown in the illustration are dispensed with.—Francis Shaw & Co., Limited, Manchester, England.

Inner Tube Splicing Mandrel

A most efficient mandrel for inner tube splicing is that here pictured. It is made of heavy galvanized sheet with no sharp edges to injure the inner tube. Internally there is a pair of arched seamless air tubes branching from a cast brass air-intake fitting. The air tubes serve also to strengthen the walls of the mandrel.

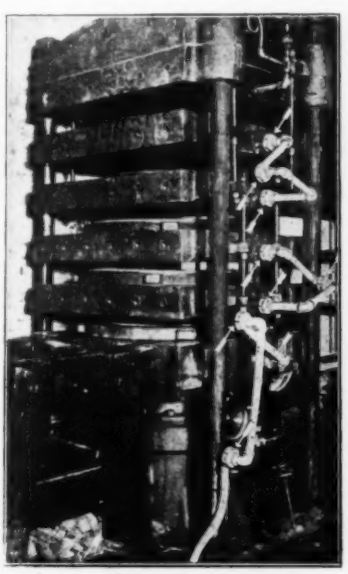
Acme Tube Splicing Mandrel

The air-blowing feature of this device is a decided advance over the ordinary plain splicing mandrel and is meeting with much favor among inner tube makers.—The Akron Sheet Metal Co., Akron, Ohio.

Flexible Joints for Vulcanizing Presses

A unique flexible nonleakable pipe joint is here shown in use on a multiple-platen, vulcanizing press. The joint consists of two end pieces, a gasket or seal that makes leaks impossible, and a nut or sleeve to hold the parts together. There are no springs and it is impossible to put the joint together wrongly.

The seal is made of special composition which has been proved durable under extreme conditions. The seal does not depend on expansion of the composition to make a tight joint, but when the pipe content passes through the joint it inflates the seal, thus automatically taking care of either high or low pressure.—Flexo Supply Co., St. Louis, Missouri.



Flexo Kant-Leak Pipe Joints

Bicycle Tire Press

A hydraulic press specially designed for rapidly curing bicycle tires of the detachable wired-on type is here illustrated. The essential features of the press, which operates on the Doughty principle, are a fixed steam-heated top section to which is bolted one side of the tire mold, a hydraulically movable bottom section carrying the opposite side of the mold, and a central mechanism comprising the toggle-operated expanding core for shaping the tire into contact with the mold sections when the press is in closed position.

Bawden Cycle Tire Press

The illustration shows the open press with the core section contracted ready to receive the tire. The action of the press is controlled by a hydraulic three-way valve of simple construction, which is very quick in action, and is operated by a hand-lever. The press is substantial in design, easy of operation, and efficient in output.

Operating in three eight-hour shifts with one of these presses, it is possible to obtain with ease 250 tires a day as a working average.—The Bawden Machine Co., Ltd., 163 Sterling Road, Toronto, Canada.

Compound Lever Shear

A very powerful hand tool for use in tool room, factory and repair shops for bead and other wire and sheet metal cutting is here illustrated. It is a compound lever shear or snip built in a variety of sizes for hand or bench use. As a bench shear it will cut 12-gage steel easily. The design of the compound lever action gives an evenly distributed cutting strain from start to finish at the point of the blade. The small size weighs but a few ounces

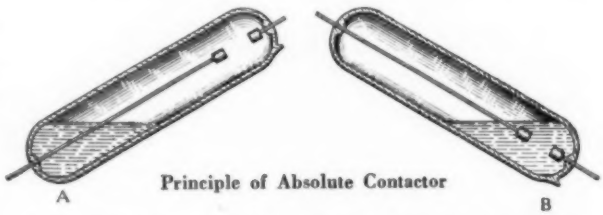
Bartlett Compound Lever Shear

and will cut paper and cloth as well as metal.—Bartlett Manufacturing Co., Detroit, Michigan.

Absolute Contactor for Safety Switches

The electric contactor here illustrated can be applied to almost any form of automatic or remote electrical control system or to safety switches for use on mills, calenders, rolls and other rubber-working machinery to prevent accidents to workmen. The ordinary open type of contact quickly sulphates and becomes dirty, requiring continuous inspection to insure operation as a safety switch to prevent loss of life and limb in operating the machine.

This thermostatic contactor consists of a glass tube with central electrodes, forming a gap near one end of the tube which contains a certain amount of mercury. In position A there is no contact between the electrodes. When the tube is tilted in position B, the mercury falls downward and envelops the ends of



Principle of Absolute Contactor

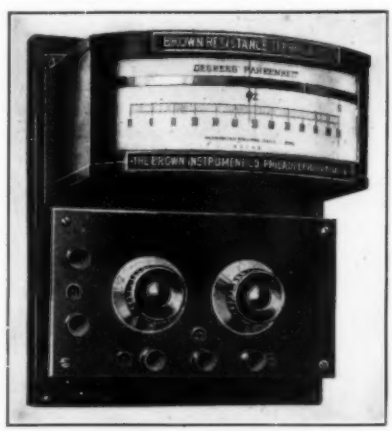
both electrodes, thus forming an absolute contact and establishing the electric circuit. The tube is filled with an inert gas to prevent oxidation or combustion within the tube.

Contactors of this type are unfailingly dependable for use with safety devices on machinery of every sort as well as for a large variety of other purposes.—Absolute Con-Tac-Tor Corporation, Beloit, Wisconsin.

Direct Reading Resistance Thermometer

A recent development has been the perfection of a direct reading resistance thermometer with a scale graduated directly in temperature degrees, as illustrated.

The instrument can be connected to any number of resistance thermometer bulbs installed at different locations. It can be used in dry kilns to measure both temperature and humidity, one bulb being subject only to the air temperature, the second bulb being covered by a wick leading into a tank of water. This type of bulb, for measuring humidity, affords a means of instantly reading the difference in temperature of both the wet and dry bulbs, and from suitable tables the per cent of humidity is available.



Brown Resistance Thermometer

This thermometer can be used to advantage in power plants and many industrial establishments where regulation of temperature is important.—The Brown Instrument Co., Philadelphia, Pennsylvania.

Machinery Patents

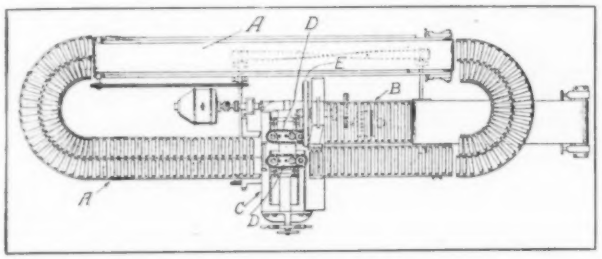
Plantation Rubber Slicing Machine

A machine for slicing compact rectangular bundles of crude rubber is here illustrated in plan view. The machine is designed to be motor operated and comprises a bundle conveyor, slice-conveying mechanism, and slicing mechanism.

The bundle conveyor A consists of an endless belt which carries forward and elevates the bundles to an inclined roller runway A, down which they pass to the slicing mechanism C. At the latter point the bundles are gripped between a pair of caterpillar endless

chain grippers D which holds the bundles firmly and passes them along to be sliced by a band saw E. The operator regulates thickness of slice by a hand wheel.

The slices drop onto the slice conveyor B by which they are delivered at the end of the machine for removal. The uncut bal-



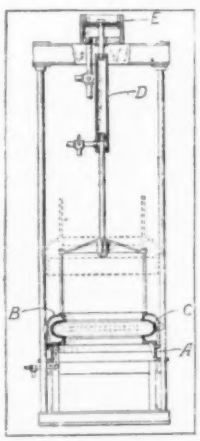
Machine for Slicing Rubber

ance of the bundle continues on the runway back to the conveying belt which elevates it for another passage through the cutting mechanism.—Neal M. Johnson, assignor to The Goodyear Tire & Rubber Co., both of Akron, Ohio. United States patent No. 1,424,133.

Expanding Tire Casings

The machine here illustrated in elevation is designed for spreading open a pneumatic tire casing to permit removal of the building core.

It consists of a base on which is mounted a fixed annular piece A arranged to pack air-tight against the sliding annular piece B and the lower bead of the tire C. The part B is moved vertically by its connection with the hydraulic cylinders D and E mounted tandem. A and B when closed upon a tire as shown, constitute around the tire an air-tight chamber sealed around the tire bead and in the space where B slides over A. A vacuum being created in this space applies suction to the tire.



Tire Spreader

The upper section B is then lifted by admission of pressure to the cylinder E only and the tire separated from its core. The suction in the chamber formed by A and B draws the beads of the tire apart with their flanged edges. The core is then collapsed and removed through the annular part A. The vacuum is then broken, the upper section B raised out of the way by admitting pressure to cylinder D, and the operation is repeated.—John R. Gammeter, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y. United States patent No. 1,421,450.

Other Machinery Patents

The United States

1,428,201 Air and steam bag for repair vulcanizers. C. G. Andrews, Denver, Colo.

1,428,381 Tubing machine. M. S. Lower, assignor to The Faultless Rubber Co.—both of Ashland, O.

1,428,420 Machine for cutting and feeding tire-making fabric. B. de Mattia, Clifton, N. J.

1,428,428 Tire repair vulcanizing apparatus. O. M. Fredd, Hancock, Mich.

1,428,526 Apparatus and process for treating latex. C. E. Bradley, Montclair, N. J., and J. G. Coffin, Hempstead, N. Y., assignors to General Rubber Co., a New Jersey corporation.

1,428,752 Apparatus and method for making tire casings. J. L. Butler, Akron, O., assignor to The B. F. Goodrich Co., New York, N. Y.

1,428,979 Tire stripping machine. E. D. Putt, assignor to The Firestone Tire & Rubber Co.—both of Akron, Ohio.

1,429,359 Apparatus for placing washers in rubber-heel molds. H. F. Maranville, assignor to The Firestone Tire & Rubber Co.—both of Akron, O.

1,429,377 Mold for transverse and annular pneumatic tires. L. A. Subers, Lakewood, O.

1,429,605 Apparatus and process for producing bodies under tension to be used as tires. D. Maggiora, Florence, Italy.

1,429,733 Tire-rimming apparatus. A. H. Harris, Barberton, assignor of ½ to E. A. Armstrong, Akron—both in Ohio.

1,429,831 Sectional tire mold. M. T. Barney, Los Angeles, Calif.

1,429,957 Collapsible tire core. F. D. Mason, Stow Township, Summit County, O., assignor to Bridgewater Machine Co., an Ohio corporation.

The Dominion of Canada

223,272 Expansible core for vulcanizing tires comprising mass of resilient rubber having coil spring embedded in it. W. A. and M. F. Gram, coinventors, both of Welland, Ont.

223,446 Device for laying rubber foxing. The United Shoe Machinery Co. of Canada, Ltd., Maisonneuve, Que., assignee of W. G. Cheney, Marlboro, Mass., U. S. A.

223,593 Tire-bead stapling machine. The Firestone Tire & Rubber Co., assignee of H. F. Maranville—both of Akron, Ohio, U. S. A.

223,594 Tire bead stapling and cementing machine. The Firestone Tire & Rubber Co., assignee of H. F. Maranville—both of Akron, Ohio, U. S. A.

223,846 Apparatus and method for making cord fabric. The Fisk Rubber Co., Chicopee Falls, assignee of M. Castricum, Springfield—both in Mass., U. S. A.

223,847 Apparatus and method for incorporating cords in rubber sheets. The Fisk Rubber Co., Chicopee Falls, assignee of T. Midgley, Hampden—both in Mass., U. S. A.

223,848 Collapsible tire core. The Fisk Rubber Co., Chicopee Falls, assignee of T. Midgley, Sr., Hampden, both in Mass., and T. Midgley, Jr., Dayton, O.—both in U. S. A.

223,849 Collapsible tire core. The Fisk Rubber Co., Chicopee Falls, assignee of T. Midgley, Sr., Hampden, both in Mass., and T. Midgley, Jr., Dayton, O.—both in U. S. A.

223,962 Apparatus for making hollow rubber articles. Paramount Rubber Consolidated, Inc., Philadelphia, Pa., assignee of W. E. Roberts, Andover, Mass.—both in U. S. A.

223,968 Tire core stripping machine. The B. F. Goodrich Co., New York, N. Y., assignee of C. Kuentzel, Akron, O.—both in U. S. A. (Reissue of patent No. 214,572, dated December 6, 1921.)

The United Kingdom

183,208 Tire-building machine. A. H. Stevens, 88 Chancery Lane, London; The Firestone Tire & Rubber Co., Akron, Ohio, U. S. A.

183,244 Apparatus for attaching rubber soles to boots. G. Desclee, 80A rue de la Couronne, Brussels.

183,254 Portable electric repair vulcanizer. H. Jäggi-Zumbühl, Zug, Switzerland.

183,793 Core for molding and vulcanizing tires. The B. F. Goodrich Co., 1780 Broadway, New York, N. Y., assignee of J. R. Gammeter, North Portage Path, Akron, O.—both in U. S. A. (Not yet accepted.)

183,812 Apparatus for retreading tire covers with rubber. C. A. Tissot, 6 rue Colbert, Grenoble, Isère, France. (Not yet accepted.)

183,974 Machine for sheeting rubber. F. Garner, Croft House, New Smithy, Chapel-en-le-Frith, Derbyshire, and J. Robinson & Co., Ltd., Springfield Lane Iron Works, Greengate, Salford, Manchester.

183,983 Apparatus for making play balls; bulbs for motor horns, syringes, etc. A. Lawton and C. Macintosh & Co., Ltd., Cambridge street, Manchester.

Germany

Patents Issued, with Dates of Issue

362,094 (July 10, 1920) Kneading and mixing machine for rubber and other plastic materials. Fernley Hope Banbury, Ansonia, Conn., U. S. A.; represented by A. Elliot, Berlin S. W. 48.

362,095 (June 6, 1920) Apparatus for making seamless rubber goods after the process of dipping and with reclaiming of the solvent. Albert Boecler, Malmö;; represented by Dr. R. Specht, Hamburg.

362,097 (February 3, 1920) Fastening for kettle presses, particularly for vulcanizing rubber. Wenzel Miersch, Frankfort-on-the-Main, Westhafen.

Design Patents Issued, with Dates of Issue

823,103 (June 12, 1922) Vulcanizing apparatus. Huttenlocher A.-G. für Maschinen- und Apparatebau, Berlin.

823,521 (June 30, 1922) Hand vulcanizing apparatus of aluminum. Willi Röhricht and Fritz Schwartz, Staaken.

823,972 (July 17, 1922) Mixer for rubber solution and the like. Firma L. Lorenz, Nieder-Ingelheim.

824,260 (June 29, 1922) Mechanism for mending tire treads. Otto Scherzer, Neugernsdorf.

824,347 (November 9, 1921) Device attached to vehicles for filling tires with air during travel. Heinrich Jak, Metz, Gau-Algesheim.

824,455 (July 10, 1922) Vulcanizing plate for repairing tubes of pneumatic tires. G. Rochow Komm.-Ges., Offenbach-on-the-Main.

825,716 (August 1, 1922) High pressure plate. Pahl'sche Gummi- und Asbest-Gesellschaft m. b. H., Düsseldorf-Rath.

Process Patents

The United States

1,428,419 Manufacture of shoes or casings for pneumatic tires. B. de Mattia, Clifton, N. J.

1,428,508 Making semisolid tires. R. H. Waters, Cumberland, Md., assignor to Kelly-Springfield Tire Co., New York, N. Y.

The Dominion of Canada

223,449 Compacting pulverulent materials, as carbon black. The Canadian Consolidated Rubber Co., Ltd., Montreal, Que., assignee of C. J. Randall and R. R. Taylor, both of Naugatuck, Conn., U. S. A.

223,460 Constructing cord tire fabric. F. S. Dickinson, New York, N. Y., assignee of J. Springer, Atlantic Highlands, N. J.—both in U. S. A.

223,515 Making water-bottle necks. The Canadian Consolidated Rubber Co., Ltd., Montreal, Que., assignee of C. J. Randall and E. C. Pierce, coinventors, both of Naugatuck, Conn., U. S. A.

223,832 Manufacturing endless V-shaped belts. The Capen Belting & Rubber Co., assignee of C. E. King—both of St. Louis, Mo., U. S. A.

223,960 Making hollow rubber articles. Paramount Rubber Consolidated, Inc., Philadelphia, Pa., assignee of F. T. Roberts, Cleveland, O.—both in U. S. A.

223,961 Making hollow rubber articles. Paramount Rubber Consolidated, Inc., Philadelphia, Pa., assignee of F. T. Roberts, Cleveland, O.—both in U. S. A.

224,030 Covering tennis balls. The Canadian Consolidated Rubber Co., Ltd., Montreal, Que., assignee of W. A. Gibbons, New York City, U. S. A.

Germany

Patents Issued, with Dates of Issue

362,096 (July 25, 1920) Process for rubberizing bands of thread. Max Draemann, von Sandtplatz, 1 Köln-Deutz.

VARIABLE SPEED FRICTION DRIVING DEVICE

A very recent invention relating to friction driving devices, which may be of the variable-speed type, utilizes in the construction of the different driving elements fabric plies thoroughly impregnated with cured phenolic condensation cementing material. On such a disk a vulcanized rubber facing may be securely attached by the interposition of a frictioned rubber-coated fabric ply for vulcanization to the rubber facing and cemented to the stiffened phenolic body under pressure and heat.

The phenolic condensation cementing materials referred to are bakelite, condensite, and redmanol varnish compositions. Thirty to sixty per cent of such cementing material may be present to stiffen the canvas fabric body, which may thus be given a strength of between ten and twenty thousand pounds per square inch.—Henry C Egerton, Ridgewood, New Jersey. United States patent No. 1,422,550.

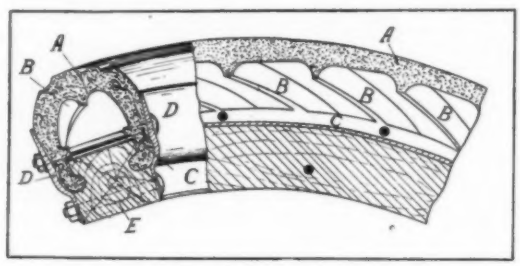
THE "COLBY COMPRESSION TUBE," MANUFACTURED BY THE Colby Compression Tube Co., East Burnside at Third street, Portland, Oregon, is built up in layers of high grade rubber and molded to the shape of the casing. When deflated a series of depressions or corrugations appear which straighten out under air pressure and provide the feature of this tube which its manufacturer claims makes it proof against puncture, rim cuts, stone bruises, or blowouts. This tube is fitted with a patented air-lock valve and is guaranteed free from defects of material or workmanship.

THE "EDRECO" CABINET WITH GLASS FRONT AND TOP FOR DISplaying elastic webbings in the roll is being furnished to dealers by the Edward Reinhard Co., 213 Fourth avenue, New York, N. Y. The cabinet holds 12 pieces of black and white elastic in assorted widths.

Miscellaneous Patents

German Cushion Tire

An airless tire of unique construction is represented in the sectional drawing shown herewith. The tire is constructed entirely of rubber composition and owes its load carrying ability and resilience to the support of the rubber ribs on the inner side of and integral with the tread portion A of the tire. The strengthening ribs or vaults B rest with their ends upon the lower or inner part C of the tire which is made of less elastic material than the upper portion A.

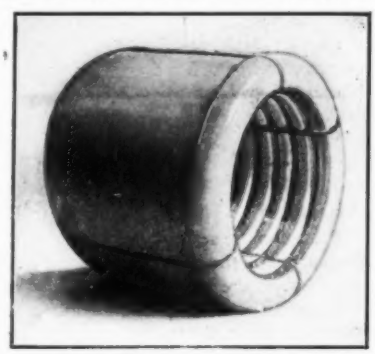


Witzel Airless Tire

To prevent giving way in lateral direction of the lower part of the tire this portion is gripped within strong removable flanges D, D, held together by screw bolts through the felloe of the wheel E which is grooved to receive the lower edges of the tire or provided with a ring for that purpose.—Albert Witzel, Ludwigsburg, Germany. United States patent No. 1,419,343.

NOVEL TIRE SHIPPING CONTAINER

A new type of shipping container for automobile tires which holds them proof against damage and theft in transit, is of interest. It comprises two light annular sheet metal ends in the form of circumferential tire sections. A cardboard or fiber cylinder rests within the outer flanges of the metal ends forming the container which will hold from eight to 15 tires according to size.



Theft Proof Tire Crate

In packing, one metal end is placed on the floor and the cardboard cylinder located therein against the outer flange. This cylinder is then filled with tires so that the level of the top tire is about three inches above the top edge of the cylinder. Then the other metal end is placed on top and pressed down so that its flange is one inch or more below the edge of the cardboard cylinder. This pressure is held while four wire straps are placed through the container spaced at suitable intervals, and the ends brought together and sealed. Pressure is then released and the package is ready for shipment.—James E. Allen, Highland Park, Illinois.

THE IDEAL WATERPROOF FABRIC CO., 621 BROADWAY, NEW YORK, N. Y., specializes in rubberized and waterproof fabrics of every description, including hospital sheetings and the daintier qualities of rubberized silk in white and pale tints. This concern also does rubberizing for the trade.

The Editor's Book Table

Book Reviews

"THE REIGN OF RUBBER." BY WILLIAM C. GEER. THE Century Co., New York. Cloth, illustrated, 339 pages, 5 by 8 inches, indexed.

THE author possesses first hand knowledge of the rubber industry gained through his long connection with The B. F. Goodrich Co. as chemist and vice-president in charge of development. He has drawn liberally on these resources in the present work.

In popular vein he has skillfully recorded for the non-technical reader a highly interesting, historically connected, and authoritative account of the discovery of crude rubber, vulcanization, and the far-reaching development of the rubber industry.

Sufficient of the fundamental technology of the subject is indicated to satisfy those who desire to outline the basic processes of rubber working. It will doubtless be a revelation to most readers of this book to realize how indispensable to the world's needs is the service afforded by rubber in its numerous adaptations in transportation, clothing, sports, light and power, communication, fire fighting, food preservation, and defense in war.

The author forecasts the world's rapidly increasing need of crude rubber for tires alone, stating that 550,000 long tons will be required for over 66,000,000 tires needed in 1928, besides 20 per cent more tonnage to be required then for all other rubber goods.

One of the incidents of the future will be the disappearance of wild rubber, dependence of the rubber industry being centered on the cultivated supply.

"MINOR PRODUCTS OF PHILIPPINE FORESTS." EDITED BY William H. Brown, Ph. D., Volume 2, Bulletin No. 22, 1921, Bureau of Forestry, Department of Agriculture and Natural Resources, Manila, P. I. Paper, 410 pages, 6 by 9 inches, illustrated.

This ample survey of the lesser commercial flora of the Philippines says that very little rubber has yet been planted, and practically all the plantation rubber produced is grown on one estate in the island of Basilan, although a few others are beginning to produce.

The report states that the most important substances which may be classified as gums are rubber and gutta percha. The southern part of the archipelago seems to be well suited to the production of plantation rubber, and the rates of growth of *Hevea brasiliensis* in this region compare favorably with rates elsewhere. Among the native plants the only one yielding a high grade of rubber is the heavy vine *Chonemorpha elastica* (Apocynaceæ). The natives coagulate the latex in salt water and get a white, tough, elastic gum averaging 81.57 per cent caoutchouc, which remains unchanged while thus submerged. A low grade of rubber is extracted from another woody vine, *Parameria barbata*, better known locally as a snake medicine than a rubber plant.

Considerable gutta percha is collected from wild plants in the southern islands, but the exports have fallen from 31,650 kilos in 1915 to 2,334 kilos in 1918, due, it is said, to the poor price paid for collecting and the necessity of going further inland because of the destruction of seed-bearing trees in more accessible places. No great development of the gutta percha industry can be expected until gutta is grown in plantations. In the Dutch East Indies it is thus grown successfully, extraction from leaves being the cultural method exclusively. The plants with commercial possibilities are the *Palaquium ahernianum* and the *Payena leerii*.

The report states that no chicle is produced in the islands although the tree *Achras sapota* from whose bark the base of chewing gum is derived, is grown extensively for its edible fruit, chico. It would seem, says the report, that the production of chicle in the islands might be a profitable industry.

"CARBON BLACK—ITS MANUFACTURE, PROPERTIES AND USES." By R. O. Neal and G. St. J. Perrott. Bulletin No. 192, of the Bureau of Mines, Department of the Interior, Washington, D. C. Paper, 6 by 9 inches, 95 pages, illustrated.

Of exceptional value to the rubber trade is this detailed study of the economic factors governing the carbon black industry, the peculiar nature of the material, the development of precise tests, microscopic examination of various grades, physico-chemical study of manufacture, and research on new methods of producing carbon black.

The authors of the paper make it clear that there is considerable difference in the properties and industrial value of carbon black produced. Also, that such substances are not simple carbon, but a mixture of hydrocarbons with other organic and sometimes mineral material. It is of interest to know that carbon black is not subject to spontaneous combustion.

"CHEMICAL ENGINEERING CATALOG, 1922,." FLEXIBLE CLOTH, illustrated, 1,187 pages, 8½ by 11½. The Chemical Catalog Co., New York, N. Y.

The seventh annual edition of this valuable reference work brings down to date the collected, condensed and standardized catalog data of equipment, machinery, laboratory supplies, chemicals and materials used in the chemical industries.

In the technical book section is listed and briefly described a practically complete list of books in English on chemical and related subjects. The catalog is leased for a nominal sum to those included under specified classifications covering managerial departments of works, educational institutions, and government departments. The work is invaluable for practical guidance in the field of industrial chemistry and chemical engineering.

"WHY MANUFACTURERS LOSE MONEY." BY ROBERT GRIMshaw. D. Van Nostrand Co., New York. Cloth, 163 pages, 7 by 9 inches.

In this little volume the author has summed up his conclusions reached through his studies, and after the delivering of a series of lectures, both in this country and abroad. The volume is conveniently arranged, and considers the causes of losses by the manufacturer under the following headings: Financial; Commercial; Organizational; Accounting; Technical; Personal; and Miscellaneous. The work appears to be well indexed.

"THE CHEMISTRY AND TECHNOLOGY OF GELATIN AND GLUE." By Robert Herman Bogue, M. S., Ph. D., Industrial Fellow of the Mellon Institute of Industrial Research of the University of Pittsburgh, and Research Chemist for Armour & Co., Chicago. First Edition, McGraw-Hill Book Co., Inc., New York and London. Cloth, illustrated, 644 pages, 6 by 9 inches.

Quoting from the preface of this valuable work on the chemistry and technology of glue and gelatine, "An enormous amount of very important and suggestive work has appeared during the past decade in the scientific literature dealing either directly or indirectly with the chemistry of gelatine and it is in the correlation and summarization of this material that the author feels his work is most completely justified." He certainly has produced a volume of great practical value to the chemist and technologist.

The book is divided into two parts, in the first of which is discussed the constitution of the proteins, the chemistry, properties and colloidal aspects of gelatine. The second part covers the technological aspects of manufacture, testing, analysis, evaluation, uses and applications of glue. The use of glue in rubber is discussed briefly.

The volume contains an appendix of convenient data, followed by an index of subjects and one of authors quoted.

Abstracts of Recent Rubber Articles

Mercaptothiazoles as Accelerators. When added to a mixture of rubber and sulphur containing oxide of zinc, lead, magnesium, calcium, mercury, etc., 1 to 3 per cent of 5-methyl-2-mercaptothiazole greatly accelerates vulcanization, which is effected in five minutes at 120 degrees C. The cadmium, lead, mercuric, and especially the zinc salts of the thiazole exhibit similar accelerating action.—G. Bruni and E. Romani. *Atti della Reale Accademia dei Lincei*, 1922, 31, I, 86-88.

Undercured Smoked Sheet. No relation is observable in smoked sheet between the content of either total moisture or internal moisture and the presence of a condition, described as "undercured," of more or less opacity. There was no clear evidence of any relation between moisture content and tendency to mold development in the thirty-one samples examined. Variations in the moisture were without influence on vulcanization properties.—R. O. Bishop. *Agricultural Bulletin of the Federated Malay States*, 1921, 9, 79-85.

Tackiness of Raw Rubber and Aging of Vulcanized Rubber Goods. From experimental results the authors conclude that the tackiness of raw rubber and the aging of vulcanized rubber involve identical or very similar oxidation processes. G. Bruni and C. Pelizzola.—*The India-Rubber Journal*, 1922, 63, 415-416.

Action of Sulphuric Acid on Natural and Artificial Rubbers—II. A quantitative investigation on the reaction products of concentrated sulphuric acid and rubbers with theoretical considerations on the data obtained. It is concluded that sulphuric acid does not polymerize rubber but forms a new hydrocarbon physically and chemically distinct with loss of typical rubber properties. The end product of the action of sulphuric acid on raw rubber was the same as the oxidation of vulcanized rubber. A new interpretation of oxidation of vulcanized rubber is presented. The hardening is a change from normal vulcanized rubber to tetramethylene rubber, followed by progressive oxidation analogous to the action of concentrated sulphuric acid on raw rubber. Assuming the formation by sulphur and air of sulphuric acid in vulcanized rubber, the hardening and increasing brittleness of rubber on aging are explained.—F. Kirchoff. *Kolloid-Zeitschrift*, 1922, 30, 176-186.

The Chemical Structure of Natural and Synthetic Caoutchouc. The conclusions of this important study as summarized by the author may be briefly stated as follows:

1. An attempt is made by critical study of the analytic work of Harries and others to prove that the empirical formula for absolutely pure Pará rubber is $C_{10}H_{17}$. African rubbers as well as the synthetic isoprene and piperyl rubbers, however, have the formula $C_{20}H_{30}$, which has been the generally accepted formula for rubber in general.

2. The difference between Pará and isoprene rubbers lies partly in the occurrence of carbonic, formic and succinic acids at the ozonide cleavage.

3. A structural formula is suggested taking into account the quantitative ratios at the ozonide cleavage as well as those at depolymerization in solution and deterioration by distillation in vacuum.

4. The purely chemical structure is not sufficient to demonstrate both chemical and physical characteristics of rubber. The author has endeavored to refer all physical, chemical and colloid rubber phenomena to a single common cause, namely, the structure of the rubber molecule.—F. Kirchhof, *Kolloidchemische Beihefte*, Vol. XVI, Nos. 1-4, pages 47-88.

State of Rubber in Its Solutions. Rubber when dissolved in benzene enters into combination with more than 100 times its weight of the solvent. Maximum swelling of rubber occurs at a concentration of about 0.3 per cent. Below this concentration the jelly probably disintegrates in the solvent with simultaneous reduction in degree of swelling of the rubber. Maximum swelling is influenced by the quality of rubber and nature of the solvent.—P. Barry. *Le Caoutchouc et la Gutta-Percha*, 1923, 19, 11393-11395.

Natural and Artificial Aging of Vulcanized Rubber. Strips of vulcanized rubber enclosed in sealed glass bulbs containing oxygen and maintained at 77 degrees C. for ten days gave a positive pyrrole test indicating formation of levulinic aldehyde. Artificial aging, therefore, gives rise to the same products as the natural process at the ordinary temperature.—G. Bruni. *The India-Rubber Journal*, 1922, 63, 814.

Partial Coagulation of Rubber Latex. By adding to latex one-third the usual proportion of acetic acid and subsequently completing coagulation by the addition of the remainder of the acid, it was possible to separate the rubber into two fractions, the first of which contain the bulk of the rubber, were generally darker, and showed greater tendency to spot disease. They also vulcanized a little more rapidly and exhibited appreciably higher breaking strain.—H. P. Stevens. *Bulletin of the Rubber Growers' Association*, 1922, 4, 196-197.

New Trade Publications

A NEW BULLETIN IS BEING ISSUED BY THE ALLIS-CHALMERS Manufacturing Co., Milwaukee, Wisconsin, descriptive of a special sifting reel, particularly adapted for compounding ingredients used in rubber manufacture, such as zinc oxide, sulphur, litharge, and other dry materials. In the utilization of these ingredients, lumps and impurities are often found, and leading rubber manufacturers are finding the new device most useful in eliminating them.

WITH THE PUBLICATION OF A SHEET ENTITLED, *Better Tires Weekly*, The Better Tires Co., Michigan avenue and 18th street, Chicago, Illinois, has now entered the house-organ field. Henry Farrington heads the editorial staff of this periodical, which will be devoted to the interests of tire dealers generally.

AN ARTISTIC, WELL ILLUSTRATED BULLETIN, ENTITLED "LAYING the Corner Stone of a Big Business," is being sent out by The Gates Rubber Co., Denver, Colorado. This souvenir edition marks the tenth anniversary of the establishment of this organization which has developed from a modest beginning into one of the largest rubber concerns of the West. Among the factors which have contributed to the success of the company is undoubtedly the attention given to the welfare of employes, for Charles C. Gates, the president of the company, has said: "At the beginning it was realized, in a broad-minded way, that the success of employer and employe must travel hand in hand."

A VERY COMPLETE ROAD DIRECTORY, FURNISHED WITH MANY MAPS and charts, covering the first section of the Lincoln Highway from Cheyenne and Denver to Chicago, is being issued by The Mohawk Rubber Co., Akron, Ohio. The second section of this conveniently arranged booklet, which is entitled "Hobbs Grade and Surface Guide," will cover the Dixie Trail from Chicago to Jacksonville, while the third instalment will be descriptive of the road from New York to Jacksonville. The Mohawk Rubber Co. announces that it is their present plan to extend this guide service until the main transcontinental routes have been covered.

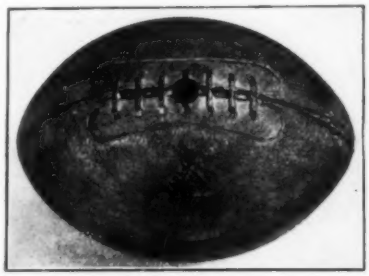
THE 1922 YEAR BOOK OF THE MERCHANTS' ASSOCIATION, 233 Broadway, New York, N. Y., sums up the various activities of this well known organization, and contains many items of interest. The publication includes the report of the secretary, the by-laws of the association, and also the personnel of certain special committees. Names of members are listed alphabetically, and are also classified according to the industries with which they are connected.

REPLETE WITH INFORMATION FOR RUBBER MANUFACTURERS—H. C. Pearson's "Crude Rubber and Compounding Ingredients."

New Goods and Specialties

Rubber Football Looks Like Leather

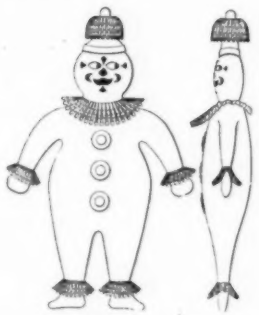
DEALERS in sporting goods will find popular the rubber football, light-brown in color, made in a roughened mold to give it the grain of leather, with the lacing and seams of the leather ball perfectly reproduced. To heighten the effect, one style has a small valve embedded in the rubber, but another is made without it. The "Paramount Junior Varsity" molded rubber football is the regulation size and shape. The same manufacturer produces a varied line of hollow rubber goods—playballs, tank balls, etc. Paramount Rubber Consolidated, Inc., Little Falls, New Jersey.



"Paramount Junior Varsity"

Inflatable White Rubber Doll

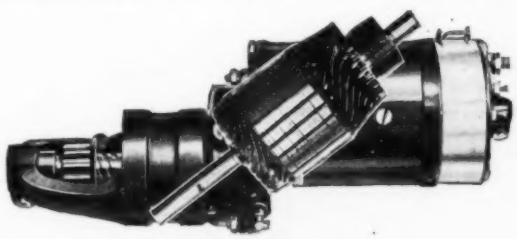
The popularity of the inflatable toy is resulting in many variations of the idea. From animals and birds that float in the water to grotesque characters of the doll family, the styles range. One of the newest is the clown made of heavy white rubber and trimmed with red, white, and blue rubber plaited frills. The inflating valve is concealed in the top of the head.—The Seamless Rubber Co., Inc., New Haven, Connecticut.



"Chubby" Clown Doll

A Bond for Armature Windings

The starting motor and armature here illustrated, geared direct to the engine fly-wheel, often attain a speed of 3,000 revolutions per minute. The copper windings of the armature must be very securely bonded to resist the severe centrifugal strains to which they are subjected. Impregnation with bakelite varnish, which "freezes by heat," most effectively answers the requirements of strength, insulation, and resistance to heat, moisture and oil, producing a permanent bond.—General Bakelite Co., 8 West 40th street, New York, N. Y.



Bakelite Armature Bond

Sturdy Heel Has Tire Quality

The "Tire Tread" heel, invented by W. B. Wiegand, is made of high grade rubber compounded according to the principles followed in the tire industry to produce super-quality treads. The design emphasizes this fact in a raised nonskid pattern depicting a recumbent tire in the center, surrounded by additional tires circling each nailhole, in addition to the words "Tire Tread."—Ames Holden McCready Limited, Montreal, Quebec, Canada.

"Tire Tread" Heel

"Tirometer" on "Clover Leaf"

The "Clover Leaf" cord and fabric tires are fitted with the "Clover Leaf" red tube equipped with the "Tirometer" combined valve and tire gage, previously described in this department, and read through its unbreakable transparent cover without removal.—The Paul Rubber Co., Salisbury, North Carolina.

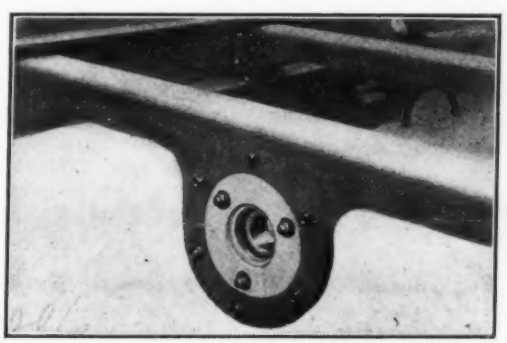
"Clover Leaf" Cord

Faultless Christmas Chest

The Faultless Juvenile Christmas Chest for dealers contains 55 packages of balloons and toys, 4½ dozen balls, 2 easel cards of toys, separate aprons, bibs, and doilies for children, and 5 dozen nursery rhyme toy ballons with valves, besides 2 separate rubber toys.—The Faultless Rubber Co., Ashland, Ohio.

Rubber-Suspended Motors

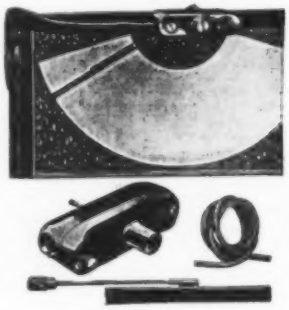
Rubberized flexible fabric disks have for some years been used successfully in universal joints on many makes of motor vehicles for absorbing shock and lessening strain in the driving mechanism. This material, known as Thermoid-Hardy, has recently been used in side and rear mountings of motor and radiator assembly of busses with notable reduction of wear and tear on the vehicle and increased comfort for the passengers. Pads of the same material are also used to lessen noise and vibration in two midship bearings carrying the drive shaft, the bearings being contained in metal housings that bolt to the rubberized fabric disks, which in turn are bolted to the cross members. The propeller shaft is also fitted with Thermoid-Hardy universal joints.—Thermoid Rubber Co., Trenton, New Jersey.



Rubber Suspension Disk

Automatic Windshield Cleaner

The "Eveready" automatic windshield cleaner is operated by the suction of the motor, fast or slowly as desired, until shut off. The wiping blade has a strip of high grade rubber embedded in it and leaves the glass clear at every stoke. The device connects to the intake manifold or the vacuum system of the car. —Apex Electric Manufacturing Co., 1410 West 59th street, Chicago, Illinois.



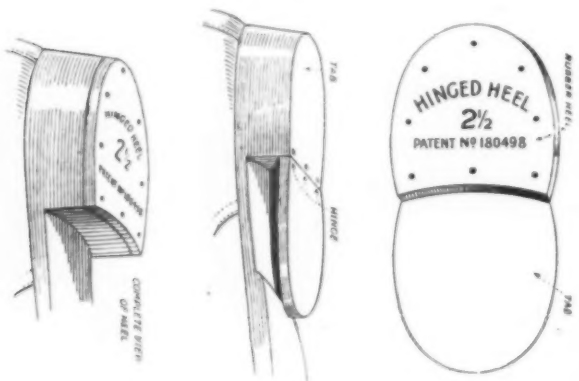
"Eveready" Cleaner

"Bridge Tread" Cord

A new cord tire with a tread design that is different from others put out by the same company is called the "Bridge Tread." It is made in the clincher nonskid type only, 30 by 3½ inches.—Braender Rubber & Tire Co., Rutherford, New Jersey.

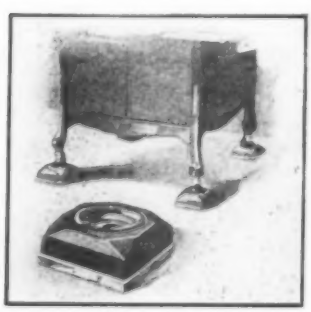
Hinged Heel the Latest

From England comes a unique patented rubber heel which has the outer rubber lift secured by means of hinges, as shown in the



Hinged Rubber Heel—Closed and Open

center view. The lefthand view indicates how the heel looks on the shoe and the righthand one shows the heel and tab.—Walter Davis, 18A Moss Lane West, Brooks' Bar, Manchester, England.



"Tone Feet"

Rubber "Tone Feet"

Combining rubber and glass of high grade, a New Jersey man has invented "Tone Feet" for phonograph or victrola cabinets. They may also be used under pianos or radio outfits. The inventor claims they increase the sweetness and accuracy of tone qualities, bring out the finer tones sometimes lost by vibration, and increase the life of both records and sound-box. The glass base may be omitted.—William H. Prickett, Box 299, Trenton, New Jersey.

Linemen's High Voltage Rubber Glove

A new rubber glove of the high voltage type for linemen is black and is made in accordance with Class "A," National Electric Light Association specifications, guaranteed to stand 10,000 volts. As matter of fact, tests at the Electrical Testing Laboratories, New York City, have demonstrated that the new glove will stand upwards of 20,000 volts, showing a leakage of not over 9 milliamperes when held for 5 minutes at 10,000 volts. This glove contains no coloring matter, thus eliminating all metallic substances which might act as conductors of electricity.—The Aetna Rubber Co., 811 East 79th street, Cleveland, Ohio.

High Voltage Glove

Sponge Auto Washer

Resembling a brush, except that it is made entirely of red rubber, the English "Galirub" washer for automobiles employs a renewable oblong rubber sponge attached to a perforated back. The back in turn is joined to a tube which, by means of a specially designed tapered ribbed connection, fits

"Galirub" Washer, the Rubber Sponge-Hose

any garage hose pipe.—The Gallite & Rubber Mfg. Co., Ltd., Galirub Mills, Burlington Road, Fulham, London, S. W. 6, England.

Fabric and Cord from the Coast

Two new western tires are illustrated here. The "Scout 49" is a fabric casing of the clincher type. The "Coast Ranger" is made in both straight-side and clincher types and is a cord tire. Both are said to be in demand sufficient to necessitate overtime work in their production.—The Coast Tire & Rubber Co., Oakland, California.

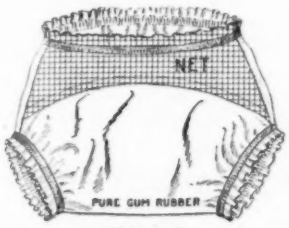
"Scout 49" "Coast Ranger"

"Va-Car" Patch

The "Va-Car" tire plaster or patch which is applied between the tube and casing, is made of layers of tested fabric treated with self-vulcanizing rubber cement. In the center is a patch of soft rubber to be placed under the hole and fill it, the fabric then vulcanizing itself to the inside of the tire. These plasters come packed in display cartons in five sizes.—Virginia-Carolina Rubber Co., Inc., Richmond, Virginia.

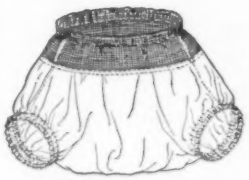
Sanitary Specialties Have Net Tops

One of the newer models of infants' all-rubber pants, called the "Spiffy-Jiffy," has double shirring of the rubber at waist and knees. (I. B. Kleinert Rubber Co., 719 Broadway, New York, N. Y.)



"Slip-On"

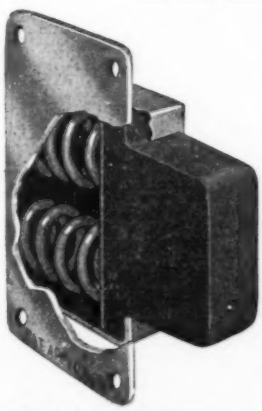
"Spiffy-Jiffy"



"Tidy Didie Hygienic"

Dealers in these goods will also find it an advantage to stock the new net top models, intended to give coolness and greater comfort. The "Slip-On" (Climax Specialty Co., 1515 Pine street, St. Louis, Missouri) has net only across the front yoke and employs a patented fancy stitch to hold the elastic in place. The "Tidy Didie Hygienic" (The Sanitary Rubber Novelty Co., Inc., 331 West Ohio street, Chicago, Illinois) has the upper part of marquisette, attached to the rubber portion by a lap seam.

Rubber Cushions Car Door

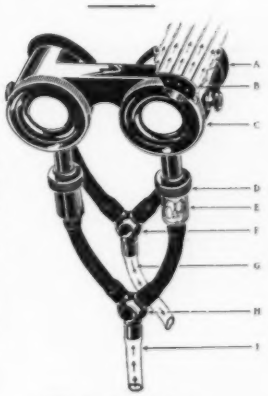


"Hushadoor" Cushioner

Among the new accessories for automobile bodies is the spring type of cushion for the door. Anchored in the plunger box are two small, stiff springs to take up the recoil of a heavy block tongue of rubber. Among the advantages claimed for this "Hushadoor" check are its compactness, flush fit, power to take up a heavy slam, and double compensating rebound. It is finished in black enamel, nickel, or natural metal to harmonize with different automobile bodies.—Velguth Metal Parts, Milwaukee, Wisconsin.

Sprayer Uses Rubber

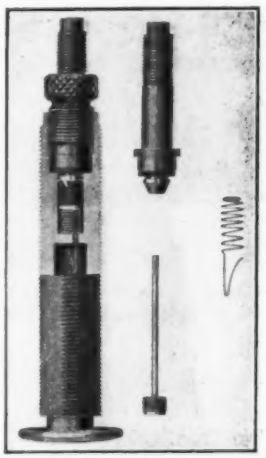
The "Hydro" eye spray neatly bathes the eyes and carries away the waste water at the same time. Referring to the diagram, A is the soft rubber contour to provide close fit around the eyes; B, chamber and needle spray apertures; C, removable lens; E and D, medicine chamber and attachment; G and F, outlet tubing and Y-connection; and I and H, inlet tubing and Y-connection.—Umbsen Manufacturing Corporation, 155 Sanford street, Rochester, New York.



"Hydro" Eye Spray

Tire Valve Fits Standard Bodies

"Tyvalco" king pin tire valves, operated by a spring within the body, claim several points of superiority: definite and sustained air sealing without caps and with or without pressure; constant cleanness of the actual seating; no variation or sticking of the plunger pins, and no obstruction of air passages; simplicity of mechanism, substantial rubber parts and adequate intake capacity. Other specialties of the same manufacturer include "Tyvalco" tire valve testers, and "Tyvalco" patent valve centers, which hermetically lock the air in the tires.—The Tyre Valve Co., 166 Edmund street, Birmingham, England.



"Tyvalco" Valve Parts

"Tiger Tread" in All Sizes

The "Tiger Tread" heel, manufactured from high grade rubber compounded by a special process, is made in all sizes and may be had in black, tan, or white for both men and women. The nailholes are standard, permitting the use of United Shoe Machinery Corporation heel-attaching machines.—Panther Rubber Co., Stoughton, Massachusetts.

"Tiger Tread" Heel

"Thermoplax" Insulation

An insulation plastic which can be accurately and inexpensively molded is known as "Thermoplax." It resists heat up to 600 degrees F.; has a dielectric strength of 70 to 110 volts per mil; is waterproof and highly resistant to atmospheric agents; and takes a high polish. Inserts can be readily molded into this material when they are supported substantially in the direct line of pressure.

"Thermoplax" is suitable for all low tension electrical work. Its field of application is steadily widening, some of the more important uses being for automobile and radio parts, heater and wiring devices, and various mechanical parts.—The Cutler-Hammer Manufacturing Co., Molded Goods Department, Milwaukee, Wisconsin, and New York, N. Y.

Examples of "Thermoplax" Molded Insulation Products

Activities of The Rubber Association of America

Monthly Meetings

THE Board of Directors of The Rubber Association held the postponed September regular meeting on October 4, at the Lotos Club, New York, N. Y., and it was a very interesting meeting of a routine nature.

The Specification Committee of the Mechanical Rubber Goods Manufacturers' Division met with a subcommittee of the Committee on Specifications and Tests for Materials of the A. R. A. on October 17, the following specifications being considered:

Proposed A. R. A. General Instructions on Standard Methods of Tests of Mechanical Rubber Goods.

Proposed Standard A. R. A. Specifications for Cold Water Hose, Wrapped Canvas and Braided Air Hose, Tender Tank Hose, Fire Hose, Steam Hose, Friction Surface Axle Light Belting, and Packing.

The October regular meeting of the Specification Committee was held on the morning of the following day, October 18, when consideration was given to a number of governmental specifications and individual railroad specifications. Attention was directed to the fact that certain specifications of individual purchasers for elevator belts and other mechanical rubber goods provide for a strength requirement of 350 pounds per inch per ply on 32-oz. duck. The committee believes this is considerably in excess of that obtainable on any 32-oz. duck in commercial use and expressed the opinion that 250 pounds should be the standard maximum strength requirement for 32-oz. duck.

The Executive Committee of the Mechanical Rubber Goods Manufacturers' Division also held a meeting on October 18, at the Yale Club, New York, N. Y. A subcommittee was appointed to consider time and tonnage guarantees on conveyor belts and to report its recommendations at the next meeting of the executive committee. A report of the activities of the specification committee of the division was rendered to the executive committee and the latter body strongly endorsed the work.

The Executive Committee of the Tire Manufacturers' Division met at the Yale Club on October 18, for its October regular meeting and a number of important subjects were considered.

Standard Claim Form

The association office is proceeding to distribute to tire dealers throughout the country an educational poster or placard suggesting the avoidance of the common tire abuses and presenting illustrations of the way in which damage to tires usually occurs.

The Standard Claim Form which is used in connection with the Manufacturers' Standard Tire Warranty was considered at a meeting of the Service Managers' Committee of the Tire Division at its meeting on October 9, and several changes which simplify the form but do not detract from its effectiveness were recommended. These recommendations were approved by the Tire Executive Committee on October 18, and the association office is proceeding in the distribution of electrotype plates to manufacturers for their use in printing the revised Standard Claim Form.

Association's Straightside Tire Propaganda

The English, French, Danish and Dutch editions of the association's educational pamphlet entitled "Why Straight Side Tyres Are Better," have been distributed to automobile and tire dealers throughout the world and the association is about to begin the distribution of the Swedish edition. As the name of the booklet indicates, it presents arguments in favor of the straightside as against the beaded-edge tire. The reports received from abroad indicate that the pamphlet is receiving hearty approval and should be of considerable assistance in promoting the use of American-made straightside tires in foreign markets.

Fall Activity Has Commenced

Following the close of the summer season, all of the divisions and committees of the association have resumed their activities and the association staff is kept busy handling meetings and other functions relating to the work of the different groups.

Association Invites Cooperation in Rubber Control

The following cablegram was dispatched on October 27 to the Rubber Growers' Association of London on behalf of The Rubber Association:

"At a meeting of the Board of Directors of The Rubber Association of America held on October 26, a Special Committee was appointed to study the effects upon the industry of pending crude rubber restriction and make recommendations for safeguarding consumers interests.

"The Rubber Association of America recognizes the desirability of stable rubber prices and the necessity for plantations to earn a return upon the investment which will assure the future of the plantation industry.

"It is thought the proposed restriction carries with it great danger to the entire industry, planters and manufacturers alike, and that closer contact between the growers and consumers will be beneficial to the industry as a whole.

"As a preliminary step to a broader understanding, the Special Committee on behalf of The Rubber Association of America extends a cordial invitation to the Rubber Growers' Association to send a committee here to discuss plans which will protect mutual interests of consumers and producers.

"H. STUART HOTCHKISS, Chairman Special Committee."

Report of Inventory—Production—Domestic Shipments of Pneumatic Casings—Inner Tubes—Solid Tires, Etc.

	Pneumatic Casings				Inner Tubes				Solid Tires			
Month	No. Mfrs. Reporting	Inventory	Production	Shipments	No. Mfrs. Reporting	Inventory	Production	Shipments	No. Mfrs. Reporting	Inventory	Production	Shipments
September, 1921	63	3,340,798	1,929,268	2,047,929	62	3,827,830	3,274,822	2,645,758	11	161,832	37,441	50,276
October, 1921	64	3,545,030	1,928,271	1,675,169	64	4,732,016	2,843,918	2,016,371	10	163,299	46,274	45,911
November, 1921	64	3,908,342	1,756,555	1,342,519	63	5,203,568	2,126,211	1,540,299	10	173,451	43,537	34,556
December, 1921	64	3,696,519	1,839,738	1,980,264	64	4,731,021	2,070,098	2,522,710	10	168,515	40,478	39,520
January, 1922	66	4,174,216	2,055,134	1,596,806	66	5,246,647	2,343,393	1,889,724	11	181,769	40,224	33,294
February, 1922	66	4,691,329	2,084,308	1,562,365	65	6,141,956	2,596,774	1,702,583	11	183,448	39,492	36,805
March, 1922	63	5,183,286	2,645,790	2,073,963	63	6,991,118	3,017,511	2,090,737	11	182,197	49,433	48,350
April, 1922	65	5,464,336	2,401,187	2,086,651	65	7,230,096	2,650,573	2,329,343	11	173,748	46,664	52,309
May, 1922	65	5,523,095	2,721,503	2,639,273	65	7,189,552	2,970,696	2,938,947	11	170,904	57,640	60,711
June, 1922	64	5,042,147	2,838,890	3,133,260	64	6,186,534	3,130,629	3,973,679	11	169,808	66,089	63,408
July, 1922	63	4,834,106	2,476,636	2,695,095	63	5,675,839	3,068,199	3,630,744	11	176,375	71,505	60,425
August, 1922	63	4,629,392	2,905,209	3,029,823	63	5,207,228	3,808,224	4,220,055	11	189,698	84,313	69,435

"Production" and "Shipment" figures cover the entire month for which each report is made. "Inventory" is reported as of the last day of each month.

"Inventory" includes tires and tubes constituting domestic stock in factory and in transit to, or at, warehouses, branches (if any), or in possession of dealers on consignment basis, and as a total represents all tires and tubes still owned by manufacturers as a domestic stock.

"Shipments" includes only stock forwarded to a *purchaser* and does not include stock forwarded to a warehouse branch, or on a consignment basis, or abroad.

Compiled by The Rubber Association of America, Inc.

Rubber Trade Inquiries

The inquiries that follow have already been answered; nevertheless they are of interest not only in showing the needs of the trade, but because of the possibility that additional information may be furnished by those who read them. The Editor is therefore glad to have those interested communicate with him.

(72) A manufacturer inquires where he can obtain balata resin.

(73) A reader desires addresses of manufacturers of cotton webbing.

(74) Request is made for addresses of concerns handling equipment for making brands for rubber hose, air-brake hose, steam and water hose, etc.

(75) Inquiry is made for the addresses of manufacturers of rubber finger cots.

(76) A rubber manufacturer desires the names of dealers in leather scrap.

(77) A correspondent desires the addresses of manufacturers of rubber bathing belt straps in white and colors.

(78) A request has been received for addresses of manufacturers of machinery for pulverizing and shredding textile fabrics, suitable for making cotton flock.

(79) A reader desires to know where he can obtain powdered slate or slate dust for rubber compounding.

(80) Inquiry is made as to the use of sand blasting for cleaning molds or any other application of the process in the rubber industry.

(81) A correspondent desires to know where he can purchase a bellows or accordion-shaped cylinder approximately one inch in diameter and resembling gas-mask tubing.

(82) An inquirer desires the addresses of manufacturers of hard rubber.

(83) A correspondent in the Far East desires the addresses of manufacturers of nickel-plated buckles used on sport belts.

(84) A reader desires rubber molds more pliable than plaster, for casting small articles, such as statuettes, in modeling or casting wax.

(85) Request is made for addresses of manufacturers of inner tube repair gum.

(86) A reader desires the addresses of manufacturers of mineral rubber.

(87) Information is desired as to where one may obtain in America a nearly transparent yellow rubber tubing used in England for handling photographic emulsions. It is said to be made from plantation rubber, cured with sulphur chloride, yet has a low sulphur content.

(88) Inquiry is made from South America for full information concerning the machinery required for equipping small factories to manufacture rubber heels, sponges, etc.

(89) A dealer in toy balloons desires to obtain white and black balloon ink which will not crumble off balloons when inflated.

(90) Information concerning golf-ball machines is requested, particularly those for thread winding and cutting, including the names of manufacturers of such machinery.

(91) Request is made for the addresses of manufacturers of loop-edged tape for wrapping inner tubes.

(92) Inquiry is made for addresses of concerns in position to furnish sling-shot rubber bands.

(93) A manufacturer desires to know where he can obtain Metazoid in the United States.

(94) An inquiry has been received for the address of the manufacturer of Talite.

(95) A Dutch manufacturer desires particulars about the most modern method of manufacturing playballs and the addresses of manufacturers of machinery for this purpose.

(96) A Hungarian company desires to purchase for experimental purposes an airbag used for cord tire vulcanization.

(97) A manufacturer of rubber goods in the Far East desires addresses of concerns producing master cores for making molds for toys of different shapes.

(98) Request is made for the addresses of manufacturers of paper flour.

Foreign Trade Opportunities

Addresses and information concerning the inquiries listed below will be supplied to our readers through the Foreign Trade Bureau of The India Rubber World, 25 West 45th street, New York, N. Y. Requests for each address should be on a separate sheet and state number.

(3666) Rubber sheeting, 8 by 4 feet, 1/16 to 1 inch thick; proof canvas and tarpaulin, complete with eyelets, 24x18 feet India. Purchase. Quote c. i. f. Karachi. Cash against documents.

(3670) Vulcanizer molds, assorted sizes, from 30 by 3 to 35 by 5 inches—Scotland. Purchase. Quote f. o. b. nearest port. Cash.

(3672) Men's belts, suspenders—England. Agency. Quote c. i. f. London. Payment in monthly account sales.

(3702) Rubber goods. Quote c. i. f. Amsterdam or Rotterdam. Payment upon receipt of goods.

(3704) Bicycles and accessories, including tires—China. Purchase. Quote c. i. f. Antung. Catalogs and prices requested. Cash.

(3708) Druggists' sundries—Mexico. To represent manufacturers.

(3717) Druggists' sundries — Netherlands. Purchase and agency desired by first class drug store. Quote c. i. f. Rotterdam.

(3736) Artificial leather—South Africa. Agency desired.

(3747) Good line of fountain pens, etc.—Africa. Purchase and agency desired. Quote c. i. f. Kilindini, Mombasa, with catalogs.

(3781) Wireless telephones, novelties, electrical and motor car fittings—Australia. Agency desired. Quote c. i. f. Sydney. Cash against documents.

(3803) Athletic and sporting goods—Italy. Agency desired. Correspond in French or Italian.

(3851) Druggists' sundries—Chile. Exclusive agencies desired.

(3852) Fountain pens—Spain. Purchase and agency. Quote, Spanish, c. i. f. Corunna. Payment against documents on arrival of goods.

(3892) Manufactured rubber articles—Belgium. Agency desired. Quote c. i. f. Antwerp. Cash against documents.

(3913) Druggists' sundries—Chile. Agency desired. Quote c. i. f. Valparaiso.

(3918) Solid and cushion tires and carriage mats—Canada. Agency desired.

(3919) Fountain pens—Switzerland. Agency desired. Correspond in German.

(3934) Fountain pens—Spain. Purchase. Quote, Spanish, c. i. f. Corunna or f. o. b. New York.

Trade Lists Available

Mimeographed copies of the following lists of foreign importers and dealers may be had upon request to the Foreign Trade Bureau of THE INDIA RUBBER WORLD. Please refer to file numbers and name of list, each inquiry on a separate sheet.

FE-23015-A Boots and shoes, importers and dealers, Australia.
LA-10059 Sporting goods, importers and dealers, Argentina.
LA-10064 Rubber goods, importers and dealers, Argentina.
LA-13038 Rubber goods, importers and dealers, Chile.

Firms in Budapest, Hungary, desiring to make direct connections with American manufacturers and exporters of rubber goods

The Obituary Record

Former Official of Manhattan Rubber Mfg. Co.

ELIOT M. HENDERSON, vice-president and a director of the Manhattan Rubber Manufacturing Co., died October 7, 1922, at the age of 56 years.

The son of the late Commodore Alexander Henderson of the United States Navy, and one of the founders of the Manhattan Rubber Manufacturing Co., Mr. Henderson was born March 2, 1866. In 1897 he became connected with this company as secretary and three years later was made treasurer. In 1903 he was elected vice-president, a position which he held until the spring of 1915, when ill health necessitated his retirement. Since that time he has not been actively connected with the company.

Eliot M. Henderson

He is survived by his widow, Mrs. Mary Henderson, a son and a daughter.

His many friends in the rubber trade and at his home, Mountain Lakes, New Jersey, mourn his untimely passing.

Sales Manager of Howe Rubber Company

Long associated with the rubber industry, Fillmore A. Drake, sales manager of the Howe Rubber Co., New Brunswick, New Jersey, died recently at his home in East Orange, New Jersey. He was born in Akron, Ohio, in 1882, and his first business connection was with The B. F. Goodrich Co., of that city. This was followed by service as a special representative for the G. & J. Tire Co., of Indianapolis, Indiana, while still later connections comprised the treasurership of the Semple Rubber Co., Trenton, New Jersey, and the presidency of the Berrodin Rubber Co., of Philadelphia, Pennsylvania.

Mr. Drake was a member of the Manufacturers' Club, of Philadelphia, and was a thirty-second degree Mason.

President of the Baumann Rubber Co.

Julius Lederer, president of the Baumann Rubber Co., New Haven, Connecticut, died late in September in his 64th year. He had been a sufferer from diabetes for more than fourteen years.

Born in New York, N. Y., February 27, 1859, he was educated in the New York and New Jersey schools, and at first entered the hide and tallow business. In 1882 he engaged in the rubber business and in 1891, with Maurice Baumann, Samuel Lautenbach and Ernest Schwenck, organized the Baumann Rubber Co., of which he was elected president in 1905. Later he became a director in the Howe-Baumann Balloon Co., Newark, New Jersey, which was incorporated in 1911.

Not only did he become one of New England's leading rubber manufacturers, but was associated in scores of other enterprises. In banking and industrial circles he made many friends who respected him for his business sagacity and integrity, and loved him for his modest, kindly disposition. Remembering his humble beginning, he never let success turn his head, and always preferred a happy home life to the limelight of public affairs. In his death, New Haven loses one of its most respected business men.

He is survived by his widow, Mrs. Martha Posner Lederer, and four sons, all of whom are already factors in business life. Interment was made in Mishkan Israel Cemetery, New Haven.

Superintendent of Detroit Insulated Wire Co.

John S. Lucock, superintendent of the Detroit Insulated Wire Co., Detroit, Michigan, died on October 10, in his fifty-seventh year.

Mr. Lucock was a native of England, coming to the United States when about eighteen years of age. For many years he was connected with the Western Union Telegraph Co., and in 1903 became superintendent of the National Cable & Wire Co., Pittsburgh, Pennsylvania. Three years later he removed to Detroit and assumed the superintendency of the Detroit Insulated Wire Co., which position be held until his death.

An exceptional man in many ways, Mr. Lucock's mechanical ability bordered on genius; his electrical knowledge was comprehensive; he excelled in mathematics; he was a literateur; but above all he was a man. His kindly, helpful, patient disposition endeared him to all who knew him, and his associates and many friends are keenly conscious of a great permanent loss in his death.

Former President of Franklin Rubber Co.

Charles T. Small, formerly president of the Franklin Rubber Co., Boston, Massachusetts, raincoat manufacturer, passed away at his summer home at Rockford, Massachusetts, September 22, after an illness of several months.

Mr. Small was born in Malden, Massachusetts, in 1862, and educated in the Boston public schools. In 1882, in association with his late brother-in-law, Everett L. Fuller, he founded the firm of Fuller, Leonard & Small, which in 1901 was incorporated as the Franklin Rubber Co. Mr. Small was elected president of the company and held that office until his retirement from active business in January, 1919. His death occurred only a month and a half after that of Mr. Fuller, the treasurer of the company, as recorded in THE INDIA RUBBER WORLD of September 1, 1922.

Charles T. Small

Mr. Small was a thirty-second degree Mason, a member of the Boston Chamber of Commerce, and at one time was president of the Malden Club. He is survived by one son, Charles W. Small and a sister, Louise S. Fuller.

Interment was made at Mount Auburn Cemetery, Cambridge, Massachusetts.

Through earnestness, integrity and personality Mr. Small and his partner, Mr. Fuller, built up and maintained a prosperous rubber goods business, making many warm business and social friends who sincerely regret the passing of these kindly men.

"BACK COATED FABRIKOID" IS THE NAME NOW BEING GIVEN TO an imitation leather manufactured by the Du Pont Fabrikoid Co., Inc., Wilmington, Delaware, with a pyroxylin backing as well as facing. The face may be of any grain and finish and the back may be smooth or in skiver grain and in the same or contrasting color. No cloth appears, no lining is required, and the edges may be cut without fraying.

News of the American Rubber Trade

Financial

Boston Woven Hose & Rubber Co.

SALES of the Boston Woven Hose & Rubber Co. for the year ended August 31, 1922, amounted to $9,431,887, as compared with $8,026,032 for the previous year, a gain of 17½ per cent. In poundage they amounted to 31,899,348 pounds compared with 20,875,587 pounds for the previous year, a gain of 52.7 per cent.

The annual report shows that after payment of regular dividends on $750,000 6 per cent preferred and 6 per cent on $4,300,000 common stock the company increased its surplus by $612,088 to $1,074,417, equal to $24.98 on the common. This compares with a loss of $1,699,667 in the previous year, due to shrinkage of inventory values and a 50 per cent decline in sales. In addition to the increase in surplus, a reserve of $352,687 for future depreciation was set up to offset a like increase in fixed assets accounts resulting from a revaluation required by internal revenue officials.

During the year inventories were reduced 35 per cent from $2,438,244 to $1,588,781, while bank loans were practically eliminated, being reduced from $1,917,500 to $222,500. Current assets on September 1, 1922, were $3,195,681, against $428,744 current liabilities.

So remarkable has been the come-back of this company that it is to be recapitalized, stockholders to receive two shares of no par value for each outstanding share of $100 par. Current earnings suggest a dividend rate on the new stock more than equivalent to the present rate of $6 per share.

Dividends Declared

COMPANY	STOCK	RATE	PAYABLE	STOCK OF RECORD
Allis-Chalmers Mfg. Co.	Com.	1% q.	Nov. 15	Oct. 24
American Rubber & Tire Co.	Pfd.	2% q.	Oct. 2	.....
du Pont, E. I., de Nemours & Co.	Deb.	1½% q.	Oct. 25	Oct. 10
Firestone Tire & Rubber Co., The	6% Pfd.	1½% q.	Oct. 15	Oct. 1
Grand Rapids Tire & Rubber Corp'n.	Pfd.	2% q.	.....	Sept. 20
Hood Rubber Co.	Pfd.	1¾% q.	Nov. 1	Oct. 19
Kelly-Springfield Tire Co.	8% Pfd.	2% q.	Nov. 15	Nov. 1
Lee Rubber & Tire Corporation	Com.	$0.50 q.	Dec. 1	Nov. 15
McKone Tire & Rubber Co., The	Com.	3% s.a.	.....	Oct. 1
Miller Rubber Co., The	Pfd.	2% q.	Dec. 1	Nov. 10
Miller Rubber Co., The	Pfd.	1% def.	Dec. 1	Nov. 10
New Jersey Zinc Co., The	Com.	2% q.	Nov. 10	Oct. 26
Tiger Tire & Rubber Co., Ltd.	Com.	2% q.	Oct. 15	Sept. 22
United States Rubber Co.	1st Pfd.	2% q.	Oct. 31	Oct. 16

Akron Rubber Stock Quotations

Quotations of October 24, supplied by App-Hillman Co., Akron, Ohio, were as follows:

	Last Sale	Bid	Asked
American com.	15	15	25
American pfd.	70	..	70
Amazon com.	5	..	5
Firestone com.	71½	72½	77
Firestone 6% pfd.	94	93	..
Firestone 7% pfd.	86	85½	87
Gen. com.	250	260	300
Gen. 7% pfd.	97	97	100
Goodrich 6's	101½	101¼	101¾
Goodyear com.	9⅞	9⅞	10
Goodyear 7% pfd.	27	26½	28
Goodyear prior pfd.	62	60½	62½
Goodyear 1st pfd.	116	116	116½
Goodyear deb.	99½	99½	100
India com.	87	80	86
India 7% pfd.	90	90	100
Mason com.	8⅝	8¼	9
Mason 7% pfd.	50	49	52
Marathon	2¼	2¼	3
Miller com.	72	70	74½
Miller 8% pfd.	100	99½	100½
Mohawk com.	10	10	15
Mohawk 7% pfd.	78	..	75
Rubber Prods.	35	19	25
Seiberling com.	8	7½	8½
Seiberling 8% pfd.	45	40	45
Star com.	25	..	25
Star 8% pfd.	..	..	80

New York Stock Exchange Quotations

October 25, 1922

	High	Low	Last
Ajax com.	14	13¾	13¾
Fisk com.	12⅝	12½	12½
Goodrich com.	33½	33½	33½
Goodrich pfd.	84¼	84¼	84¼
Kelly-Springfield com.	43	42	42
Lee com.	25¾	25¾	25¾
United States Rubber com.	55	53½	54¼

New Incorporations

Ackerman Rubber Co., September 27 (New Jersey), $250,000. F. P. Ackerman; L. M. and W. W. Seed, all of Paterson, New Jersey. Principal office, 39 Paterson street, Paterson, New Jersey. To carry on and conduct the business of manufacturing rubber in all its branches.

Albion Mechanical Rubber Manufacturing Co., Inc., October 13 (New York), $5,000. J. E. and K. V. DuBois, both of 271 St. Marks Place; E. M. DuBois, 53 Wall street; all of Staten Island, New York. To manufacture mechanical rubber goods.

Allegheny Chemical Manufacturing Co., October 12 (Delaware), $100,000. T. L. Croteau; M. A. Bruce; C. H. Blaske, all of Wilmington, Delaware. Delaware agent, Corporation Trust Company of America, Du Pont Building, Wilmington, Delaware. To manufacture, prepare and trade in oils, pigments, fillers, chemicals and kindred articles.

Allyn, H. H., Rubber Corporation, October 18 (Delaware), $100,000. F. R. Hansell; J. V. Pimm, both of Philadelphia, Pennsylvania; E. M. MacFarland, Camden, New Jersey. Delaware agent, Corporation Guarantee and Trust Company, 927 Market street, Wilmington, Delaware. To manufacture, buy, sell and distribute tires, tubes and rubber goods of all kinds.

Auto Tire & Vulcanizing Co., Inc., August 3 (Massachusetts), $10,000. D. and L. Frank, both of 235 Saratoga street, East Boston; D. J. Davis, 69 South Elm street, Lynn, both in Massachusetts. Principal office, Boston, Massachusetts. To buy, sell and trade in automobile tires, accessories and automobile batteries.

Big Bear Tire Co., September 14 (California), $200,000. C. A. Vories, R. A. Mattice, and F. N. Arnoldy—all of Los Angeles, California. Principal office, Los Angeles, California. To deal in tires.

Blue Ribbon Gum Corporation, October 5 (Delaware), $2,500,000. T. L. Croteau; M. A. Bruce; C. H. Blaske, all of Wilmington, Delaware. Delaware agent, Corporation Trust Company of America, Du Pont Building, Wilmington, Delaware. To manufacture and deal in chicle, chewing gum and all appliances and other things used in connection therewith.

Consumers Rubber Co., August 10 (Kansas), 200 shares no par value. M. E. Palmer, president; A. H. Palmer, vice-president; F. C. Starr, secretary and treasurer. Principal office, 222 West Sixth avenue, Topeka, Kansas. To deal in tires and rubber goods.

Dragon Tire & Rubber Corporation, September 26 (New York), $25,000. A. Steiner, 1566 Seventy-seventh street; M. Meyers, 1735 Park Place; L. Bregoff, 350 Westervelt avenue—all of Richmond Borough, New York. To deal in tires, tubes and accessories.

Duratex Corporation, August 30 (New Jersey), $1,900,000. A. W. Britton, S. B. Howard, and R. K. Thistle, all of 65 Cedar street, New York, N. Y. To manufacture leather, rubber, and textile products.

Dutchess Battery & Radio Corporation, September 6 (New York), $5,000. H. Eggleston, president; F. J. Slater, vice-president; M. G. DuBois; H. B. Vosburgh, all of Poughkeepsie, New York; F. B. Lown, 4841 Broadway, New York City. Principal office, Poughkeepsie, New York. To manufacture and sell batteries and everything incidental thereto.

Faultless Pneumatic Tire Co., September 7 (Washington), $2,000,000. C. H. Hesseltine; W. A. Calder. Principal office, Seattle, Washington. To buy and sell tires, accessories, rubber goods and merchandise of all descriptions.

Holcombe Rubber Co., Inc., September 29 (New York), $500. H. W. Holcombe and S. Lamont, Jr., both of 1196 Warburton avenue, Yonkers, New York; R. W. Patrick, 575 Riverside Drive, New York City. To deal in tires.

Horn Surgical Co., May 15 (Pennsylvania), $100,000. W. H. Horn, Jr., president, 8 Overhill Road, Upper Darby; W. B. Christy, vice-president, 7620 Germantown avenue, Chestnut Hill; K. G. Frisby, secretary, 7 West Coulter street—all of Philadelphia, Pennsylvania. Principal office, 1701-1705 Vine street, Philadelphia, Pennsylvania. To manufacture seamless elastic hosiery, abdominal supporters, etc.

Indemand Products Corporation, September 6 (Delaware), $100,000. M. M. Lucey; L. C. Browne; L. S. Dorsey, all of Wilmington, Delaware. Delaware agent, Colonial Charter Company, 927 Market street, Wilmington, Delaware. To manufacture and deal in rubber, celluloid, leather, fabric or other material.

Intercontinental Rubber Products Corporation, September 25 (Delaware), $6,040,000. C. A. Cole, Hackensack; R. A. Van Voorhis, Jersey City, both of New Jersey; W. E. Schiels, Jr., New Dorp, Staten Island, New York. Delaware agent, Registrar and Transfer Co., 100 West Tenth street, Wilmington, Delaware. To manufacture and deal in gum caoutchouc, crude rubber, gutta percha, and all fibrous or plastic materials and substances.

Lenox Tire Corporation, October 18 (New York), $10,000. M. Nugent and A. Meigher, both of 114 West 124th street, New York City. To manufacture tires, etc.

Lion-Mead Rubber Co. Limited, June 26 (Canada), $2,500,000. Heman H. Lang, president; J. U. Archambault, M.D., vice-president; J. A. Valin, secretary-treasurer. Principal office, 13-14 Lindsay Chambers, 59 Main street, Hull, Canada. To manufacture tires, casings, inner tubes, the "Mead" valve, and other rubber accessories.

Lund-Williams Shoe Co., September 5 (Delaware), $1,250,000. R. L. Lund, president and treasurer; B. W. Williams, vice-president and secretary. Principal office, Eleventh street and Washington avenue, St. Louis, Missouri. To manufacture rubber heels, soles, and cement.

Marlborough Tire & Accessory Corporation, August 25 (Maryland), $5,000. J. Frank, 114 West Mount Royal avenue; B. Frank, Marlborough Apartments, both of Baltimore, Maryland; I. Frank, Villa Nova, Howardville Station, Maryland. Principal office, corner McMechen and Madison avenues, Baltimore, Maryland. To sell tires, accessories and auto parts of all kinds.

Metalastic, Inc., September 27 (New Jersey), $100,000. H. T. Stewart, 422 West 115th street; F. Durgan, 231 West 23rd street—both of New York City; F. J. Reuter, 66 Waring Place, Yonkers, New York; F. H. White, 336 Park Place, Brooklyn, New York. Principal office, 75 Montgomery street, Jersey City, New Jersey. To manufacture and sell all types of packing for valves and machinery of every kind using packing.

Murray Rubber Co., October 11 (New Jersey), $2,000,000. H. A. Black; J. R. Turner; A. F. McCabe, all of 15 Exchange Place, Jersey City, New Jersey. Principal office, North Clinton avenue, Trenton, New Jersey. To manufacture and deal in tires, tubes, mechanical and other goods composed wholly or in part of rubber or any similar substance.

Oklahoma Fabric & Rubber Co., October 17 (Delaware), $1,250,000. S. L. Mackey, L. C. Christy, and J. D. Frock—all of Wilmington, Delaware. Delaware agent, Corporation Service Company, Equitable Building, Wilmington, Delaware. To manufacture, etc., and deal in cotton fabrics, hemp, jute, raw materials and all kinds of finished products.

Peavey Rubber Company of New England, The, September 15 (Massachusetts), $40,000. R. A. Peavy, 101 Homer street, Newton; A. T. Daniel, 8 Plympton street, Cambridge; H. W. Conant, 11 Gibbens street, Somerville—all of Massachusetts. Principal office, Boston, Massachusetts. To manufacture, buy, sell and deal in rubber goods, tires, tubes, automobile appliances and accessories and all kinds of merchandise.

Posner-Ormond Tire Company, Inc., September 1 (Alabama), $2,000. B. Ormond, president; N. L. Posner, secretary and treasurer; F. O Denson, vice-president—all of Birmingham, Alabama. Principal office, 1700 Second Avenue, North, Birmingham, Alabama. To carry on a retail and wholesale automobile tire and accessory business.

Snap-On-Heel Corporation, September 26 (New York), $300,000. G. M. Schrade, 282 Kossuth street, Bridgeport, Connecticut; and A. V. Schrade, 290 West Broadway, New York, and A. F. Garbe, 482 Fourth street, Brooklyn—both in New York. Principal office, 282 Kossuth street, Bridgeport, Connecticut. To manufacture rubber heels.

Sylvester Rubber Corporation, August 25 (California), $50,000. S. D. Webb, 942 Geary street; B. Franklin, 34 Palm avenue; M. P. Martingoli, 461 Larkin street, all of San Francisco, California. To manufacture, sell and distribute rubber cushion heels, insoles, soles and other parts of shoes.

E. J. Todd, Inc., July 22 (Connecticut), $50,000. A. P. Adams, Great Barrington, Massachusetts; T. C. Hadden and E. J. Todd, both of New Haven, Connecticut. Principal office, 65 Whalley avenue, New Haven, Connecticut. To conduct a wholesale tire business.

Underwood-Kerr Rubber Co., The, October 9 (Delaware), $300,000. C. H. Jarvis, L. B. Phillips, and M. F. Vance, all of Dover, Delaware. Delaware agent, United States Corporation Company, Dover, Delaware. To manufacture, buy, sell and deal in goods, wares and merchandise of every class and description.

Universal Truck Tire Company, Inc., October 20 (New York), $25,000. B. G. Ekelun, D. E. Alvord, and M. K. Brewster, all of Syracuse, New York. Principal office, Syracuse, New York. To manufacture tires.

Vasta Tire Company, Inc., October 6 (Delaware), $500,000. C. H. Jarvis, L. B. Phillips, and M. F. Vance, all of Dover, Delaware. Delaware agent, United States Corporation Co., Dover, Delaware. To manufacture, buy, sell and deal in tires of all kinds.

The Rubber Trade in the East and South

New York

Manufactured Goods

Rubber goods manufacturing operations in all divisions of the industry have continued very active during October. The principle of offsetting seasonal declines in demand by balancing with opposite seasonal and non-seasonal lines is materially assisting in maintaining factory output at a high level. The factory demand for basic material continues strong and in most sections deliveries are hampered either by car shortage or priority of coal movement.

Tire and tube production continues above the average for this year and seasonal reduction will be moderate until the upturn due in January. Heel output appears stabilized at full capacity. Mechanical goods generally are very active with factories strenuously insisting on large immediate supplies of materials for manufacture. Footwear plants are at work on larger scale tickets of production for winter and spring goods. Insulated wire mills are working to capacity on large contracts for railway and building equipment. Weather-proofed clothing, druggists' sundries, and novelties are all showing satisfactory volume of production.

Toddy Rubber Manufacturing Co., 98 Park Place, New York, N. Y., has been absorbed by M. Toddy & Co. of the same address, which will continue to manufacture sanitary specialties. This concern is also handling the "No Bristle" rubber tooth brush described in our April issue.

John F. Sipe, New York, N. Y., the inventor of a special tool and method of cutting for converting solid into cushion tires, has been granted a patent on his invention in the Dominion of Canada. This process and device were described in THE INDIA RUBBER WORLD, February 1, 1922.

It is announced that F. H. Lyon has recently become associated with Wallace L. Gough, crude rubber broker, with offices at 23 Water street, New York, N. Y.

Jaeger & Co., crude rubber brokers, formerly at 150 Nassau street, announce the removal of their offices to the Woolworth Building, 233 Broadway, New York, N. Y.

R. H. Hale & Co., formerly at 233 West 58th street, moved on October 1, to the Fisk Building, Broadway and 57th street, New York, N. Y. At the same time this organization became a representative for this territory of the Bergougnan Rubber Corporation, Trenton, New Jersey, manufacturer of tires and tubes.

H. O. Nadler, formerly advertising manager for the New York branch of The B. F. Goodrich Co., has recently become connected with The Barrett Co., manufacturer of roofing products, and will serve the latter organization by specializing in publicity and sales promotion work.

L. P. Kent & Co., Inc., 2 Rector street, New York, N. Y., has been organized with a capital of $100,000, to deal in crude rubber and tropical products for eastern accounts. The officers are: L. P. Kent, president; B. W. Guernsey, treasurer; and Theron A. Clements, secretary.

Leo Goldberg, 445 Rogers avenue, Brooklyn, New York, who is said to be the representative of the inventor, will demonstrate the Witzel cushion tire to anyone interested.

The Hewitt Rubber Co., 240 Kensington avenue, Buffalo, New York, reports that all previous production records on both tires and tubes have been broken this year. The factory has been running night and day in an effort to keep up deliveries. The company is featuring its "White Seal" line of all black tires in sizes from 30 by 3½ through 37 by 5-inch, which have been sold through distributers for some time, though but recently announced to the public.

At 358 Ellicott Square, Buffalo, New York, has been opened a branch office of The Cutler-Hammer Manufacturing Co., Milwaukee, Wisconsin, manufacturer of electric motor controllers, clutches, brakes, and other electrical equipment for the rubber and allied industries. B. A. Hansen, formerly of New York City, is in charge of the new office which will serve particularly western New York and the Province of Ontario, Canada.

Ira A. Worthington has resigned as sales manager of the Trent Rubber Co., Inc., Trenton, New Jersey, and has accepted a similar position with the West Haven Rubber Co., West Haven, Connecticut. Mr. Worthington was formerly engaged in the tire business at Newark, New Jersey, and some years ago went to Trenton, where he held a responsible position with the Delion Tire & Rubber Co.

Pennsylvania

The Electric Hose & Rubber Co., Wilmington, Delaware, has removed its office in Philadelphia, Pennsylvania, from 34 North 5th street to 911-912 Land Title Building, southwest corner of Broad and Chestnut streets, where William M. Sibley is local manager.

The United States Asbestos Co., manufacturer of asbestos textiles, packing, and brake lining, has removed its general offices from 45 North Duke street, Lancaster, to its mills at Manheim, Pennsylvania. The export office at 131 Liberty street, New York, N. Y., will be maintained. S. R. Slaymaker, vice-president and general manager of the company, is now in Europe, where he will remain for some time visiting important asbestos and allied industrial plants.

The General Tire & Rubber Co. has let contracts for three wings to its factory to make possible the doubling of its production capacity. New equipment has been purchased. The new factory additions will be three stories high. One will be 60 by 100 feet, another 40 by 180 feet, and the third 36 by 100 feet. This is the first actual expansion which has been undertaken by any rubber company in Akron proper since 1920.

HALF A CENTURY IN WHOLESALE RUBBER GOODS

Fifty years with the same firm is the record of George F. Nelson, president and treasurer of the Chamberlin Rubber Co., Rochester, New York.

Born in Rochester on May 13, 1858, and educated in the public schools there, he went to work in 1872 as a general boy with hours from seven o'clock in the morning until seven in the evening, at two dollars a week. His employer was James R. Chamberlin, dealer in general rubber goods, and from him Mr. Nelson learned the wholesale rubber business.

In 1904 the Chamberlin Rubber Co. was incorporated and Mr. Nelson appointed secretary. Six years later he became president, treasurer and general manager, and has since conducted a large and prosperous business in belting, packing and hose as well as miscellaneous rubber goods in great variety.

Mr. Nelson is well known and popular in Rochester. He is a thirty-second degree Mason and a member of the Royal Arcanum, Rochester Club, Rotary Club and Oak Hill Country Club.

SOUTHERN TEXTILE EXPOSITION

Among the various organizations displaying their products at the Southern Textile Exposition, which was held October 19 to 26, at Greenville, South Carolina, were the following well known companies:

ALLIS-CHALMERS MANUFACTURING CO., Milwaukee, Wisconsin. Textile motors, power, electrical and industrial equipment.

H. W. BUTTERWORTH & SONS CO., Philadelphia, Pennsylvania. Five-roll calender, tentering machines, and Foxwell pneumatic guider.

CARLYLE JOHNSON MACHINE CO., Manchester, Connecticut. Friction clutches, self-lubricating arrangements, pulleys, etc.

MANHATTAN RUBBER MANUFACTURING CO., Passaic, N. J. Rubber belting, etc.

MORSE CHAIN CO., Ithaca, N. Y. Full line of chain samples. Five h.p. chain drive in operation mounted on Morse universal bracket attached to standard spinning frame; also one h.p. motor and silent chain drive on knitting frame.

NATIONAL ANILINE & CHEMICAL CO., INC., New York, N. Y. Textiles of various kinds showing all hues and colors.

THE SCHAEFFER & BUDENBERG MANUFACTURING CO. and AMERICAN STEAM GAUGE & VALVE MANUFACTURING CO. DIVISION, Brooklyn, N. Y. Valves, steam gages, steam traps, thermometers, recorders, etc.

WESTINGHOUSE ELECTRIC & MANUFACTURING CO., East Pittsburgh, Pennsylvania. Auto starter with push button control; magnetic contactor starter for individual drive spinning frame motors; Krautz safety motor starters and entrance switches; new mill type reflectors for mill lighting.

"ATHLETIC PIGS" ARE A NEW BALLOON TOY, SIMILAR IN APPEARance to the "Squealing Pig," but the legs are made of rubber tubing instead of wood and in the end of each is a single shot which adds a certain amount of weight. The tail is formed by the valve, and when the toy is filled with air and tossed up, the "Athletic Pig" is guaranteed to alight always on its feet.—Norwalk Rubber Toy Co., Norwalk, Ohio.

The Rubber Trade in New Jersey

Manufactured Goods

It is encouraging to be able to supplement reports of the last few months in regard to the well sustained and continued demand for the product of Trenton rubber factories. As reported in previous issues, this statement holds true of all lines of rubber goods. Even the tire business has held up remarkably well and has not shown the decided falling off usually occurring at this time of the year. Demand for mechanical rubber goods, hard rubber goods, and many other rubber specialties made locally continues without any indication of decrease. With most of the mechanical rubber goods factories now making up numerous seasonable lines for next year there will be no dull period in these Trenton rubber factories this year.

Rubber Manufacturers' Association

The Rubber Manufacturers' Association of New Jersey held its first fall meeting on October 10, at the Trenton Country Club. Several exciting golf matches between members of the association were played during the afternoon. This was an added feature because of the fact that no meetings had been held during the summer period. The individual golf championship was undecided although more than one of the competitors did not hesitate to assert his claim to the title. Golfing over, the members adjourned to dinner and enjoyed a very pleasant evening.

The following companies were represented by one or more officers at the meeting. The Voorhees Rubber Manufacturing Co., The Acme Rubber Manufacturing Co., Bergougnan Rubber Corporation, Crescent Insulated Wire & Cable Co., Globe Tire Co., Hamilton Rubber Manufacturing Co., Home Rubber Co., Luzerne Rubber Co., Mercer Rubber Co., United & Globe Rubber Co., Woven Steel Hose & Rubber Co., Murray Rubber Co., and Whitehead Bros. Rubber Co.

The Murray Rubber Co.

The Murray Rubber Co. has been incorporated with a capital of $2,000,000 authorized, as shown by certificate of incorporation recently filed with the county clerk of Mercer County. The new corporation has taken over the plant and business of the Empire Tire & Rubber Corporation, recently bought at receivers' sale for $1,670,000. The incorporators are: H. A. Black, John R. Turner, and Alfred F. McCabe, all of Jersey City. H. R. Nason is named as resident agent. The stock is divided into 20,000 shares, par value $100 each. One-half the issue is 7 per cent preferred stock. The common stock will be placed on a dividend basis at the discretion of the directors. Power is delegated to the directors to issue bonds but it is stipulated that the amount shall not exceed $750,000. The directors are further empowered to negotiate mortgages on the property and other assets of the company.

Trenton

Ralph W. Tobin has been made vice-president of the Woven Steel Hose & Rubber Co., Trenton. His brother, Horace B. Tobin, continues as president and treasurer, and H. Burtis Skellenger, secretary. John S. Broughton, head of the United & Globe Rubber Co., has disposed of his interests in the concern. The Woven Steel Hose & Rubber Co. continues to prosper under the management of Horace B. Tobin.

The Acme Rubber Manufacturing Co., Trenton, still continues to operate a night force, and reports business in all lines as being unsurpassed for this time of the year.

The Home Rubber Co., Trenton, has been booking some large orders for rubber belting recently besides a considerable business in suction hose for export. Increased demand for their product is reported by their London agents.

The Hamilton Rubber Manufacturing Co., Trenton, is enjoying a well sustained demand for its C. R. L. fire hose, high-grade friction surface belting, and a number of specialties.

The Essex Rubber Co., Trenton, is exceedingly busy in the heel and sole department, and if present demand continues may be compelled to increase its facilities.

Bergougnan Rubber Corporation, Trenton, reports having recently made a number of new sales agency connections which will insure a substantial increase in business.

The Mercer Rubber Co., Trenton, reports business not as brisk as last month, although the plant is running full handed. The Hamilton Rubber Manufacturing Co., reports similar conditions. The Ajax Rubber Co. expects to continue operating three shifts all winter. Specializing in tire and tube making, the company has secured high efficiency. The output averages around 2,200 tires a day, plus many more tubes.

New Jersey Notes

The Titeflex Metal Hose Co., of Newark, has been incorporated with 5,000 shares of no par value to manufacture metal hose and rubber tubing. The incorporators are: C. W. Fletcher, R. H. Stone and W. K. Herbert, all of 297 Badger avenue, Newark, New Jersey. R. H. Stone is the agent in charge and the company will maintain an office at the above address.

William L. Brunyate, of Newark, has been appointed receiver of the Smith Rubber & Tire Co., of Saddle River, New Jersey, following an involuntary petition in bankruptcy filed by David H. Bilder, counsel for some of the creditors. Under the order, prosecution of a chancery action brought by a creditor of the company is prohibited. The Smith company has a modern plant equipped with $500,000 worth of machinery. Two mortgages aggregating $108,000 are held against the assets.

The newly elected operating executives of the Lambertville Rubber Co., Lambertville, New Jersey, manufacturer of "Snag-Proof" footwear, are: Clyde E. Murray, general manager; Fred W. Bommer, assistant general manager; W. E. Crowley, superintendent; W. W. Williamson, employment manager. The company has gone into the development of several new lines of footwear, particularly canvas, and is now practically oversold.

The affairs of the Zee-Zee Rubber Co., Yardville, New Jersey, are not yet disposed of finally. Filing of claims for salaries by former employes occupied the hearing of the bankruptcy referee for several hours recently. Samuel H. Bell, of Reading, Pennsylvania, presented a claim of $10,000 against Irving Zimmerman, an officer of the company, alleging this sum was loaned for three months on a note. Zimmerman asserts the money was given him for the purchase of stock. Mr. Bell presented a note which was unsigned, claiming that Zimmerman had promised to sign it when he received the $10,000 but did not keep his promise. Bell was formerly manager of the company at Reading, and is the proprietor of a large drug store there.

The Weiner Tire Co., Inc., has been incorporated at Trenton with $100,000 capital stock to manufacture and sell tires. The plant is located at Irvington, New Jersey.

The Aladdin Tire Corporation, East Rutherford, New Jersey, with a capital stock of 2,500 shares of no par value, was incorporated in June under the laws of New Jersey, to manufacture and sell cord tires exclusively to department stores. The officers are: Charles Austin Bates, president; F. A. Goddard, vice-president; J. A. Miller, treasurer; J. A. Miller, assistant secretary and assistant treasurer; and Bartlett Greene, secretary.

Century-Plainfield Rubber Co., Plainfield, New Jersey, has been incorporated under the laws of New Jersey with an authorized capital stock of 20 shares, each $100 par, to manufacture and sell all kinds of rubber goods, including tires and tubes. This concern acquired at a receiver's sale the plant, assets, and real estate formerly belonging to the Century-Plainfield Tire Co. and the officers are: Herbert C. Schleicher, president; Louis J. Franzblau, vice-president; and Joseph M. Saunders, secretary and treasurer. The reorganization was effected by N. Saks, the auditor.

The Duratex Co., Newark, New Jersey, manufactures rubberized materials for auto top covering and the apron and raincoat trade. A. J. Healey is sales manager.

The Rubber Trade in Rhode Island

The month of October has developed a general improvement in the manufacturing rubber industry of Rhode Island and reports from the various factory plants in the state indicate a more stable and satisfactory situation than has pertained in several years. While the abnormal rush of the war period has not been attained, business as a whole at the factories has improved to such an extent as to be practically normal. The most encouraging feature of the situation, however, is to be seen in the generally optimistic feeling on the part of the management of the several plants that there will be an indefinite continuance of improving conditions.

Advance orders for rubber overshoes were reported during the month just closed as coming in to some extent, and it seems certain that the first sign of a "bad" winter will send the retailers scurrying for goods. Because of the lack of heavy snows during the past two winters, store shelves have been taxed to supply whatever demand there was without the retailer finding it necessary to order extensively. But now wholesalers and manufacturers believe retailers' stocks must be low and consequently are expecting a good season, and the early orders would appear to substantiate this belief.

The past month has been an active one with the National India Rubber Co., at Bristol, and the various divisions of that plant have been operating on a basis that is nearer normal than it has been for many months. Prospects are said to be good for an indefinite period of work on the present schedule. There is now a larger number of persons on the payroll of the National India Rubber Co. than at any time since the curtailment began immediately following the Armistice that not only stopped the World War but closed one of the most abnormal periods in the history of the industry. The Keds division is especially busy and the daily output is the largest that it has been in the past five years, and orders are reported as being almost of a record breaking character daily.

Charles K. Mullen has been appointed assistant foreman in the calendering department of the National India Rubber Co. and Frank M. Gigord chief inspector in the wire division. Both appointments became effective at once.

Business at the Davol Rubber Co., Point street, Providence, continues brisk and in some departments orders are showing substantial gains that promise steady operation for months to come. All the concern's staple lines are moving with increasing strength while the rush on novelties is tending to keep everything humming. The company is constantly making shifts in its departments as new additions to the plant are completed and as rearrangements are made in the large five-story brick building across Point street from its main plant, which the company purchased about two years ago but of which it has only recently obtained full possession. The number of employes has also been increased during the past month or two, but there is still a call for more young women to complement the working force in several departments.

Both plants of the Woonsocket Rubber Co.—the Alice Mill in Woonsocket and the Millville Rubber Co. in Millville—report big business and large orders constantly coming to book. All of the departments are operating on a full time card and there is every

indication that there will no change in this respect in the immediate future; management and operatives alike have settled down for several months of uninterrupted activity on the present basis.

William H. Gilbert of Woonsocket, formerly of Providence, who has been connected with the United States Rubber Co. for many years, and for the past twelve years as treasurer of the Pacific coast branch of that corporation with headquarters at San Francisco, sailed from Vancouver on the Canadian Pacific steamship "Empress of Australia" on September 27, having been commissioned by the corporation to go to China and Japan for the purpose of promoting and extending the business of the company in the Far East.

The Bourn Rubber Co., Warren street, Providence, has been obliged to largely increase its operating force on footwear during the past few weeks and its plant is now turning out a normal production schedule, with orders on hand that will take up the total output well into the coming new year. Numerous changes and improvements have been made in the firm's factory during the past summer and new machinery added in some of the departments.

At the plant of the Revere Rubber Co., on Eagle and Valley streets, Providence, there has been a steady expansion of building space and a constant improvement in all the departments. In consequence of the erection of new buildings numerous changes have been made in the arrangement of the departments, but the increasing business continues to demand additional facilities and within a fortnight work has been commenced upon a two-story brick addition that it is intended shall be completed before cold weather so as to be available at an early date. This addition will be 56 by 76 feet and will relieve much of the congestion now experienced in some of the sections.

Davis-Jones Insulated Wire Co., Pawtucket, Rhode Island, recently incorporated with a capitalization of $80,000, to manufacture insulated wire, cables, and portable cords, as well as electrical apparatus, has purchased land and buildings for its factory at Phillipsdale in the same state. David S. Davis is president of the company.

The Rubber Trade in Massachusetts

Manufactured Goods

Rubber footwear factories are very busy with large orders for early delivery, and present indications are that the spring dating business for canvas footwear will be larger than for several years. Mechanical goods production is practically normal, and with better transportation facilities throughout the country promises to continue so. Some railway car shortage has still to be reckoned with, however. Insulated wire production is nearly at capacity, and automobile topping demand continues active. Druggists' sundries and waterproof clothing are developing a seasonally brisker business, while the tire and tube output, although well maintained, is beginning to feel the gradual curtailment incident to the autumn closing of the driving season in the northern states. The rubber and fiber heel and sole trade shows no diminution. Reclaimers are taking heart over the turn in the crude rubber market, although the amount of actual business resulting from it has been comparatively small. In most lines of rubber goods dealers' stocks are low and being replenished, indicating several good months ahead.

Boston

Francis H. Hathorne, treasurer of the Pneumatic Cushion Rubber Heel Co. and Standard Shoe Tying Machine Co., Boston, celebrated his fifty-fifth business anniversary on October 1, by working all day at his office as actively as at any time since he entered the shoe business in 1867. His sense of humor and genial disposition make him still a young man at 72. Hard work has given zest to his life, while music and baseball are his recreations.

Harry Bunting has joined the clothing division of the Clifton Manufacturing Co., Boston, as assistant to the general manager, N. Lincoln Greene. His long experience in the rubber clothing business with the American Rubber Co. and the Apsley Rubber Co. will add materially to the Clifton company's ability to serve the trade.

All of the rubber footwear factories in the Boston district —Hood, Converse and United States—are now exceedingly busy with orders for winter delivery and anticipate a good season. Factory forces and daily tickets are already large and forces are being still further recruited, the American Rubber Co. plant of the United States Rubber Co. having found it necessary to advertise for more operatives.

Massachusetts Notes

Warren MacPherson, president of the Cambridge Rubber Co., Cambridge, Massachusetts, sailed on the S. S. "Majestic" early in October and will visit the principal cities of several European countries. This firm's export business is steadily increasing and it is Mr. MacPherson's purpose to establish foreign branches for handling it properly.

Alert salesmanship is needed in these days of keen competition and branches of the Hood Rubber Products Co., Inc., Watertown, Massachusetts, are meeting with success with a novel idea suggested by W. C. Springer, the firm's manager in St. Louis, Missouri. Hotel registrations are checked and within half an hour after his arrival a buyer receives from the Hood branch an invitation to inspect the Hood line in the company's sample rooms.

The Phoenix Rubber Co., a new concern at Brockton, Massachusetts, will manufacture rubber heels under the trade name of "Deerhead," and rubber cements under the trade name of "Seal of Quality." Charles D. Wener is president of the company and Barnett I. Racow is treasurer. Both have some twenty years' experience in the rubber business, and the latter enjoys a wide acquaintance in the trade. The plant on Brookside avenue has 7,000 square feet of floor space.

The Alfred Hale Rubber Co., Atlantic, Massachusetts, reports a steadily growing interest and demand for its Rajah sole for sport shoes. This is a crêpe rubber sole made by a special process on which patents have been applied for. It differs from the English crêpe rubber soles on the market in several respects and possesses highly satisfactory gripping and wearing qualities.

The Avon Sole Co., Avon, Massachusetts, has added to its line of Aero Du-Flex fiber soles a crêpe rubber sole made in red and natural color and sold under the trade name of "Ruf-Grip."

The Converse Tire Co., Malden, Massachusetts, contrary to custom at this season, has increased its production schedule on Converse Cords for the winter. This is to meet increasing sales, not to accumulate stock.

The Stedman Products Co., South Braintree, Massachusetts, is now specializing in Stedman Naturized Flooring in solid colors and veined multicolor effects for hospitals and public buildings, for which it has the indorsement of the American Hospital Association. Several recent installations of importance in leading cities have multiplied the demand for this remarkable product.

Trustees in bankruptcy have been appointed for the Needham Tire Co., formerly manufacturer of Wids heels and soles, at Charles River, Massachusetts. They are: Percy A. Atherton, W. Rodman Peabody, and Carlton Hunneman, all of Boston.

Coordination and standardization in the government's contractual activities were the subjects particularly stressed at the seventh annual meeting of the Associated Industries of Massachusetts, which was held in Boston, October 17. Among the names of those appointed on the executive committee the follow-

ing were noted: George L. Lawrence, factory manager, United States Rubber Co., Boston Rubber Shoe Co. Division, Malden; Frederic C. Hood, general manager and treasurer of the Hood Rubber Co., Watertown; and William L. Pitcher, superintendent and director of the Easthampton Rubber Thread Co., Easthampton, Massachusetts.

The Rubber Trade in Ohio

Manufactured Goods—Akron

"The rubber industry in all its divisions can look forward to steadily increasing production wherever this is possible, and a continuation of the stability which has characterized the present year thus far."

This was the consensus of opinion at the recent interplant conference held by The Goodyear Tire & Rubber Co., and to a large extent represents the opinions of the manufacturers in this district. The high production rate which has characterized the so-called dull months in this district has now lasted entirely too long to permit of any material reduction between the end of the motoring season business and the beginning of the spring dating business.

Reports from every section of the country indicate that the spring dating business will be the largest in the history of the industry because of the realization on the part of dealers that they must lay in supplies for the coming motoring season, and that tire prices have reached their low level. The matter of price increases in tires continues to be discussed, but has not yet been brought to a head.

In other lines, peak conditions are being approached. The heel business is larger than during any previous year. Some authorities estimate that the increase over last year may be as much as 25 per cent, while none place their estimates at lower than 15 per cent increase.

Mechanical goods sales have reached almost war proportions, and in some departments, notably hose, production capacities are being taxed to meet demand. The mail orders for footwear are larger than for many years and during the past month the "Help Wanted" sign for boot and shoe makers has been in evidence. The rubber sundries business has improved because of the nearness of autumn weather. The low stocks of dealers and distributers make it necessary to purchase now. The approach to normal conditions in the mines and on the railroads has made for increased business in both footwear and mechanical goods. The specialty demand is active with a good holiday business in prospect.

Raw Material Buyers Caution

Contracting for raw materials and tire fabric for the coming year is proceeding very cautiously and does not promise to be very widespread. According to present indications the larger and smaller rubber companies will go into the coming year on a more or less hand to mouth buying policy.

Several of the larger companies are reported to have contracted for several million pounds of tire fabric during the past month, but the quantities contracted for are only a very small portion of their requirements during the first half of the coming year. Builder and cord fabric make up the largest part of these contracts. That tire fabric prices have probably reached the bottom is the general opinion of most manufacturers, but the industry is exceedingly cautious because it was tire fabric which figured largely in the financial difficulties following the beginning of the depression.

Other supplies are purchased on the same cautious policy, including rubber. The advance in crude prices, following the report of British plans to curtail production, is believed to be the beginning of an upward movement that will bring the crude rubber market to a more stable price level.

Estimates of Tire Requirements

The future tire requirements of the world are always of interest to rubber manufacturers. Had not the depression made the rubber industry extremely cautious two recent predictions would be causing it to make plans for a wide expansion.

Dr. W. C. Geer, vice-president of The B. F. Goodrich Co. predicted in his recent book that tire requirements in 1928 will be not less than 66,000,000, with a total of 22,000,000 motor vehicles in operation in the world as compared with the present total of 13,000,000.

Dr. Geer estimates that the tire production capacity of the world is in the neighborhood of 55,000,000, of which 44,500,000 is in this country, so that if his predictions are correct the industry must expand in the next five years to keep pace with demand.

The Miller Rubber Co. estimates that at least 36,000,000 tires will be sold in the United States this year, which will set a new record, the Miller company itself having placed the 1922 demand at less than 28,000,000 early this year. All previous estimates have been in the neighborhood of 33,000,000.

Is the Public Disregarding Tire Brands

That the matter of tire brands is receiving less consideration from motorists as the price of tires has dropped while the quality has increased, is the view of some authorities in Akron, although discussed only privately thus far.

Tires are now purchased for less than the price of a good pair of shoes or a very good hat. Only a few years ago tire companies spent thousands of dollars every year telling car owners how to take care of their casings. These departments have gone out of existence or have been assigned other duties. Car owners no longer consider tire costs because in reality there are no bad tires and all give more than 6,000 miles and many over 14,000.

As a result authorities here sense that motorists usually go into tire stores and buy a tire regardless of its make. They are likely to make no mistake but if they do, the cost is comparatively small and the loss insignificant. The situation is not unlike that of the shoe and the hat business not many years ago. Then to be properly dressed a man was compelled to wear one of a few brands of hats. The same was the case with shoes. Now the great mass of men "buy a hat," and practically all hats are good. So are tires.

The situation is perceptible only to the closest observers, the same men who first sensed the trend towards cords and the trend away from tire mileage guaranties. They believe that motorists are "just buying tires" regardless of make. Either something must be done, they say, to make individual producers stand out prominently in the tire field, or they will be submerged in the general category of "tire makers," affording opportunity to the "gyp" manufacturer and making it more difficult for the public to avoid this class of tires.

Bus Transportation to Replace City Traction Lines

Although tire manufacturers have viewed the development of the bus transportation business as offering the best possible field for the sale of the highest quality tires, it remained for S. J. Witt, general freight manager of the Akron, Canton & Youngstown Railroad, to be the first railroad man to predict that city traction lines will be a thing of the past within ten years.

Many rubber manufacturers have made the same prediction, but their views were looked upon as being biased, and the statement by Mr. Witt confirms the already optimistic views regarding this new tire field.

"The street car day has passed," he says. "There is no room for the street car in the modern city. It will be replaced within the next decade by the motor bus, which means an entirely new field for the automobile tire. The bus uses up at least twice as many tires as does the average automobile. Only the best tires can be used and for that reason the tire industry is justified in

looking to the bus as one of the great consumers of casings in the future."

The bus business has sprung up almost over night. While last year there was only a comparatively small number of buses, it is estimated that more than 40,000 are now in operation in the United States, while every indication points to twice this number within the next year.

The Northern Ohio Traction & Light Co's. small fleet of three busses with which the company started six months ago has now grown to 25, and 5 new machines have been ordered. Many traction lines throughout the United States have adopted the system as supplementary to existing systems of transportation. Some of the largest railroads have adopted the new passenger bus as part of their equipment and others are starting the use of trucks, equipped with pneumatic tires, as supplementary equipment for freight service.

While the prediction that the street car will pass entirely out of existence in 10 or even 20 years may be exaggerated, it is generally felt that the bus business limits are certainly not realized and that this field of the tire business will prove the most profitable during the next few years.

Johnston Retires from Rubber Products Co.

W. A. Johnston, founder of the Rubber Products Co., Barberton, Ohio, has retired from the presidency and has been succeeded by C. C. Schutz, for many years general manager of the company and connected with it since its inception.

Joseph J. Johnston, son of W. A. Johnston, has been named vice-president. John Wiley has been made treasurer and J. B. Chisnel, secretary. To the board of directors have been added Frank Graham and F. M. Hickman, of Barberton, and J. E. Finnefrock, of Dover, Ohio. The other members of the directorate are E. J. Schutz, brother of the newly elected president, John Blaser and Joseph Johnston, also vice-president.

Business in the druggists' sundries department, which is the principal feature of the company's production, is reported to be very good, although the tire business, in which it has been engaged since 1919, has not made much improvement. Most of the energies of the company have been directed to the development of the sundries department of the business.

Mason to Increase Production

The Mason Tire & Rubber Co. has announced that production will be increased from 4,000 to 5,000 tires a day on November 15. The increase was contemplated earlier but freight conditions made it impossible to ship the tires as rapidly as they could be sold and manufactured.

The company is now operating its Kent plant at capacity, as has been the case for more than a year, and the increase in production will be made at its Bedford, Ohio, plant, formerly owned by the Owen Tire & Rubber Co.

Stockholders have approved the sale of $2,000,000 first mortgage bonds and the issuance of 200,000 shares of no par common stock to be sold for $12 a share. The proceeds of the sale of these securities will be used to complete payment for the Owen plant, to retire approximately $570,000 worth of short term serial gold notes and for expansion of the business. The firm will do in the neighborhood of $12,000,000 worth of business during the present year, according to officials of the company. Production is limited to tires.

General to Double Factory Capacity

The General Tire & Rubber Co. has placed machinery orders preparatory to doubling capacity of its factory. One old building has already been moved to make way for factory extension. A large part of the equipment required will be made in the company's own machine shop.

During the past month the concern has placed on the market a new 30 by 3½ cord tire called the "Jumbo," which is inflated to a pressure of only 30 pounds. Thus far no preparations are being made to manufacture this tire in other sizes.

A statement issued by the company as of August 31 shows an increase in surplus account from $200,000 to $800,000 and an increase of almost $200,000 in the government security account. Although the balance sheet as issued indicates that $100,000 in loans were outstanding, William O'Neil, vice-president and general manager of the company, states that this item has been paid off.

The company's sales policy in restricting its agents and dealers to selling only the General line and the fact that its inventory is turned over approximately every 20 days is the principal reason for the good showing the company has been making.

During the past year the company has devoted much time to the development of the bus tire business and is now one of the largest producers of bus tires in the Akron district.

A Genius in Rubber Machinery Design

John Gammeter, process engineer of The B. F. Goodrich Co., and for more than twenty-five years the official inventor of the company, has more than 125 rubber machinery inventions to his credit, while more than 500 others have been perfected and completed through his assistance.

John R. Gammeter

Mr. Gammeter came to the Goodrich organization many years ago as a plumber. He saw the machinery with which the rubber products of the time were made was exceedingly crude. Almost immediately he set to work perfecting machinery for the production of rubber goods. The first machine which he made "out of a clothes wringer and scraps" proved to be successful and within a very short time he advanced from the wage payroll to the position of engineer and then to the position of "inventor."

As the rubber industry expanded rapidly, many kinds of machines were needed and many improvements on old equipment had to be made. Mr. Gammeter received an order for a machine and it was eventually produced. At times the orders seemed impossible, but in most cases the equipment was forthcoming. During the past few years the engineers who have worked in the department have received most of the credit for the inventions because, as Mr. Gammeter says, "It makes them take a keener interest in their work."

One of the first machines Mr. Gammeter invented was the golf-ball winding machine, the fundamental principle of which is still used in the winding machine of today. Tire-building machinery of all kinds is in the category of those which he perfected and developed. At the present time the 50 engineers in the department are working on dozens of machines which will increase the speed and efficiency of rubber production.

Goodyear Activities

The Goodyear Tire & Rubber Co. interplant conference was attended by representatives from Los Angeles, California; Toronto and Bowmanville, Canada; and Goodyear, Connecticut, as well as by representatives from the important branches both in the United States and foreign countries. Among those who attended the conference were: E. H. Kokin, general superintendent of the Toronto plant; A. M. Hardy, superintendent of the Bowmanville, Ontario, plant; A. D. Wheeler, experimental engineer of the Canadian subsidiary; C. W. Young, newly appointed superintendent of both Goodyear fabric mills; C. E. Slusser and H. E. Blythe, of the Los Angeles plant; F. A. Steere, of the Los

Angeles cotton subsidiary; William Stevens, Edward Hugelet, T. A. Linnane and B. Darrow, of Akron.

The Goodyear company has answered the suits brought against the company and its directors in which the refinancing and reorganization plan was attacked. It asserts in its answers that the plaintiff had ample opportunity to object to the plan but did not avail herself of it. The sale of the first mortgage bonds is held to be legal because it was made in New York where restrictions are not imposed upon interest rates. The sale of 275,000 shares of common stock for $275,000 is defended upon the ground that the stock was worth no more than this amount. The management contract with the Leonard Kennedy Co., of New York, N. Y., is defended upon the ground that increased efficiency and savings have more than justified this management contract.

North Hill Viaduct Completed

The rubber industry participated whole-heartedly in the celebration accompanying the opening on October 12 of the $2,000,000 North Hill viaduct which connects the business section of Akron with the northern part of the city and forms one of the principal traffic links to Cleveland and the north. The factories of the city closed their doors at noon, and most of the larger and some of the smaller companies entered floats in the three-mile parade which was the principal feature of the celebration.

The B. F. Goodrich Co. was represented by one of the most beautiful floats, which carried "Miss Akron," selected by an afternoon newspaper as the most beautiful girl in the city. The Miller Rubber Co., the Swinehart Tire & Rubber Co., the Kelly-Springfield Tire Co., The Mohawk Rubber Co., the Falls Rubber Co., The Marathon Co. and The American Rubber & Tire Co. were among the other concerns in the line of march. The Goodyear Tire & Rubber Co. displayed one of the smaller diameter tires in which field it pioneered and announced for the first time that on September 5 it had completed its 47,000,000th tire. Early last spring the company produced its 45,000,000th tire and the fact that 2,000,000 had been produced during the summer came as a surprise.

Akron

A few personnel changes in Akron rubber factories have been announced during the past month. B. F. Pickens, formerly in charge of sales promotion of The Amazon Rubber Co., has been named sales manager of the Tuscora Rubber Co., Dover, Ohio. F. J. Costlin, formerly of the Star Rubber Co., has been general manager of The Knox Tire & Rubber Co., Mt. Vernon, Ohio. J. A. Boettner, formerly in the aeronautic department of The Goodyear Tire & Rubber Co., has returned to his former position with this company after being out of the rubber business for more than a year. N. A. Neiger, who left Goodyear to join the Seiberling Rubber Co., has returned to the former company as tire department superintendent. A. C. Horrocks is among the Goodyear Industrial School officials who have resigned to take a position with a Texas company. Samuel Miller, of the Goodyear school, has been succeeded by F. E. Stallings as registrar of the school. F. H. Vermillion, founder of the Miller Repair School, has become vice-president and sales manager of the Western Reserve Rubber Co. Robert Williams, former Goodrich production manager, has joined the Swinehart Tire & Rubber Co.

Improvement in European conditions and a widening market for American rubber goods, especially tires, was noted by rubber manufacturers who visited England and the Continent during the past few months. Among those who returned recently are Harvey S. Firestone, president of The Firestone Tire & Rubber Co.; W. O. Rutherford, vice-president and sales director, and L. D. Brown, treasurer, of The B. F. Goodrich Co.

That some disposition will be made of the Phoenix Rubber Co., East Akron, by the receiver during the coming month is the general opinion. A large number of inquiries have been received from prospective producers of rubber tires and other rubber products and it is expected that an order of sale will be asked for in the very near future. The plant has been idle for almost a year.

The International Lead Refining Co., a subsidiary of the Anaconda Copper Co., has completed its first factory unit here and will start production of zinc oxide on a large scale during the next two months. The plant is equipped with electric stills, which are said to be the latest equipment for the production of zinc oxide. The company has made all arrangements for moving its sales organization to Akron. Its product will be sold largely to the rubber industry.

Captain Ernest E. Buckleton, head of Buckleton & Nourry, Ltd., Liverpool, England, dealer in crude rubber, was in Akron last month, where he has many friends in the trade.

William G. Martin, development superintendent of The North British Rubber Co., Ltd., Edinburgh, Scotland, visited the Akron rubber factories last month.

A. Fenton, superintendent of The Perdriau Rubber Co., Ltd., Sydney, Australia, is a recent arrival from the Antipodes and will visit eastern and Akron rubber factories.

A general sales department convention attended by more than 150 salesmen from all sections of the country was held by The General Tire & Rubber Co., Akron, beginning October 23. The general plan of merchandising and plans for the coming year to dispose of double the number of tires made in 1922 were discussed.

Ohio Notes

The Dayton Rubber Manufacturing Co., Dayton, Ohio, which specializes in the production of "Thorobred" tires and tubes and "Airless" tires, reports a steadily-increasing business, with sales well ahead of the same period a year ago. More goods were sold in August than in any previous month of the company's history, while as much business was handled by the organization during the first eight months of 1922 as in the whole year of 1921. Operations have been carried forward at the plant on a basis of twenty-four hours a day since December 2, 1921.

The Republic Rubber Co. recently reopened the tire department of its Youngstown, Ohio, plant where production in the near future will be gradually increased. At this factory which has a maximum capacity of 3,000 casings daily a new tire known as the Republic "Eagle" cord will be manufactured. E. A. Armstrong has been appointed superintendent of the Youngstown plant, and W. E. McCormish development engineer in the tire and tube departments. The Canton plant is closed and production transferred to Youngstown resulting in economy and greater output.

During the present season The McLean Tire & Rubber Co., East Liverpool, Ohio, has been running its plant 24 hours a day with an average daily output of 800 tires and 1,000 tubes. Although this production will be reduced during the winter months, additional equipment is to be installed with a view to operating on a larger scale during the coming year. G. H. Stewart is assistant secretary.

All departments are reported as running at full capacity at the tire manufacturing plant of The Cooper Corporation, Findlay, Ohio, with a daily production of 550 tires, 1,500 inner tubes, two miles of internal wire buggy tire, and 3,000 hard rubber battery jars. Officials of the organization anticipate a large amount of business during the coming year. J. F. Schaefer is vice-president, and is in charge of the tire manufacturing division.

The Henderson Tire & Rubber Co., Inc., Goodale Boulevard, Columbus, Ohio, reports prospects for the future as being most encouraging. Additional equipment is being installed at the company's plant, while the present daily output of 1,500 tires will

soon be increased to 2,500 tires a day. A recent addition to the executive personnel is the appointment of F. P. Harrington as general sales manager. Other officials of the Henderson organization include C. O. Henderson, president and general manager; and George C. Riley, secretary.

R. C. Fulmer has been named permanent president of the Amazon Rubber Co., Akron, to fill the position vacated by L. J. Schott, the founder of the business. Mr. Fulmer came into the company with the reorganization more than a year ago. Claude E. Dettler, who was acting president following the resignation of Mr. Schott, has been named general manager. Production at the Amazon plant is reported to be approaching peak, and is at present in the neighborhood of 250 to 270 tires a day. The company is said to be showing a satisfactory profit.

The Rubber Trade in the Midwest

Manufactured Goods

Rubber manufacturing conditions in the midwestern section reflect, with those elsewhere, a strong demand for tires, tubes, mechanical goods, and other standard lines. Factories are either operating full or at near approach to capacity and are experiencing difficulty in the lack of adequate transportation facilities for carload shipments.

Midwest Rubber Manufacturers' Association

There was a good attendance at the regular monthly meeting of the Midwest Rubber Manufacturers' Association, which was held on October 10 at the Hotel Morrison, Chicago, Illinois. W. W. Wuchter, president of the association, presided.

It was the general sentiment of those present that the small tire manufacturers of the Middle West have suffered considerably from keen competition and the price cutting war which has existed during the past year. In spite of this, however, it was believed that with the coming of spring, conditions will have greatly improved as the prospects for the tire trade in general are excellent.

The principal speaker of the occasion was Dr. R. P. Shepherd, of the Chicago Association of Commerce, who delivered an impressive address, urging the tire manufacturers to develop group thinking and acting, as well as friendly relations among the people in their own communities, all of which make for greater manufacturing and distributing efficiency. Manufacturers were also advised to persuade their dealers to operate on a cash basis only, while the use of the trade acceptance was commended.

The association voted to hold its next meeting on November 14, at the Missouri Athletic Association, St. Louis, Missouri.

Rubber Section Officials, National Safety Council

At the Eleventh Annual Congress of the National Safety Council, held at Detroit, Michigan, August 28 to September 1, the following were appointed to serve as committee chairmen of the Rubber Section:

Chairman, Rubber Section, E. W. Beck, United States Rubber Co., New York, N. Y.; vice-chairman, C. T. Wilson, Kelly-Springfield Tire Co., Akron, Ohio; chairman, Bulletin Committee, H. H. Graef, The Goodyear Tire & Rubber Co., Akron, Ohio; chairman, Program Committee, A. L. Viles, The Rubber Association of America, Inc., New York, N. Y.; chairman, Membership Committee, E. L. Hewitt, United States Rubber Co., Footwear Division, New Haven, Connecticut; chairman, Engineering Committee, C. B. Mitchella, The B. F. Goodrich Co., Akron, Ohio; secretary, A. M. Partridge, The Fisk Rubber Co., Chicopee Falls, Massachusetts; chairman, Publicity Committee, E. S. Underhill, United States Rubber Co., New York, N. Y.; chairman, Health Hazards Committee, C. F. Horan, Hood Rubber Co., Watertown, Massachusetts; chairman, Standardization and Statistics Committee, G. I. Lyons, United States Rubber Co., New York, N. Y.; Chairman, Safe Practices Committee, W. L. Schneider, The B. F. Goodrich Co., Akron, Ohio.

N. T. D. A. Third Annual Convention

The National Tire Dealers' Association will hold its third annual convention at the Hotel Pfister, Milwaukee, Wisconsin, on November 14, 15 and 16. Sales policies and merchandising plans for the 1923 season as well as various problems of the retail branch of the industry will be discussed on this occasion by tire dealers who, it is expected, will be present from all sections of the country.

R. F. Valentine, president of the association, is in charge of an interesting program, while H. A. Ruhnke, president of the Wisconsin Tire Dealers' Association, which is sponsoring the convention, is devoting his energies to making the occasion a record breaker from the standpoint of attendance.

Midwestern Notes

Owing to its steadily increasing business in the Middle West, the Cambridge Rubber Co., Cambridge, Massachusetts, has established a branch at 19 South Wells street, Chicago, Illinois. The factory is a busy place these days and the increased facilities being provided by the plant addition now under construction are much needed.

Joseph M. Dine, who has served successively as vice-president and general manager of The Oldfield Tire Co., Akron, Ohio, and as general sales manager of The Madison Tire & Rubber Co., Inc., 20 West 60th street, New York, N. Y., has been recently appointed by The Mason Tire & Rubber Co. as district manager of its central western division, with temporary headquarters at 1205 West Grand avenue, Des Moines, Iowa. The district covers branches in Chicago, Milwaukee, Minneapolis, Omaha, Des Moines and Cedar Rapids.

At the annual meeting, on October 16, of the stockholders of the Inland Rubber Co., La Salle and 27th streets, Chicago, Illinois, the following officers and directors were elected: OFFICERS—E. B. McKay, president and general manager; M. J. Flynn, treasurer; and F. L. Ayer, secretary; DIRECTORS—E. B. McKay, M. J. Flynn, F. L. Ayer, Adolf Kuecken, and A. Colnon.

Mr. McKay and Mr. Ayer are well known in the rubber industry, while Mr. Flynn has been connected, in the capacity of treasurer, with the Inland organization since it was first established.

The Rubber Trade on the Pacific Coast

Manufactured Goods

The question which chiefly concerns rubber manufacturers on the Pacific Coast is the probable course of future tire prices. The recent creeping up of cotton and crude rubber prices is viewed with some anxiety. While tire manufacturers have felt that increased cost of production justified price advances on both casings and tubes, they are waiting for the action of eastern and midwestern tire makers whose profits are similarly affected by the rising costs of raw materials. It is said to be certain that the last reductions have been made in the prices of Pacific Coast-made tires; and it is highly probable that there will be an early revision upward.

Los Angeles

An excellent demand for tires and tubes is reported by the Goodyear Tire & Rubber Company of California, and the operating force is as large as ever, despite a slight easing up in orders, as is usual at this season. Clifton Slusser, general superintendent, left for Akron a fortnight ago for a conference with executives of the parent company.

F. R. Carroll, manager of the Los Angeles branch of The B. F. Goodrich Rubber Company, has been in conference with the com-

pany's executives in Akron for the past two weeks. The southwest trade is reported up to standard in all lines.

The Angelus Heel & Rubber Co., 1417 North Main street, Los Angeles, of which W. E. McCarty and E. T. Mihm are the active factors, has taken on the production of several new mechanical lines in addition to its large heel business.

The Hendrie Rubber Tire Co., Torrance, California, is making good progress, having raised its output to 125 tires daily. All standard sizes are made, chiefly in cords. Thomas H. Thropp, of the John E. Thropp's Sons Co., Trenton, N. J., is president.

The Reilly Rubber Co., 2432-4 East 56th street, Los Angeles, has increased its production of red mission tubes, from 25 to 300 daily. Further increase will be made when expert help can be had.

J. B. Magee, Los Angeles manager of the United States Rubber Co., has just completed a survey of the entire southern California field and finds the outlook for trade very encouraging. Total sales are considerably ahead of the corresponding period a year ago, he states.

The Long-Turney Corporation, manufacturer of hard and soft rubber specialties, is maintaining offices and plant at 1920 East Vernon avenue, Los Angeles, California. The products of this organization include pump valves; packing; retread stocks; medical appliances; oil well supplies; radio parts; rubber rolls; heels; mats; washers; and automobile accessories. George W. Turney is general manager.

San Francisco

Exceptionally good business in all lines, especially tires and mechanicals, is reported by J. B. Brady, general manager of all the western branches of the United States Rubber Co., whose headquarters are in San Francisco. The seasonal slowing down in some lines has been slight, but the total sales in all departments have been very much higher for October, 1922, than for the same month a year ago. The company's nation-wide special selling campaign is reported as particularly satisfactory in the coast territory.

Charles W. Harris, Pacific Coast manager of the Hewitt Rubber Co., Buffalo, New York; A. D. Nichols of Weinstein & Nichols, Hewitt products distributers; Henry E. Schmidt, of Seattle; and J. B. Wood, of the J. B. Wood Tire & Rubber Co., Los Angeles, Hewitt distributer, attended a conference held at the Hewitt plant last month.

Henry E. Field, vice-president of the Lee Tire & Rubber Co., New York, and Albert W. Schell, an executive of the Cincinnati Rubber Manufacturing Co., Cincinnati, have been visiting coast trade centers.

The Gill Battery Co., capital $1,000,000, is erecting a factory in Oakland, California, which is to be ready early in 1923, where storage batteries will be made for a territory embracing California, Oregon, Washington, Nevada, Utah, Idaho, Arizona, the Hawaiian Islands, and Mexico. It will cooperate with the parent company's plant at San Bernardino, California. The battery, put on the market two years ago, uses no separators. T. H. Lloyd is president of the new company.

With a minimum daily production of 385 tires, the Coast Tire & Rubber Co. is operating its new plant in Oakland night and day, and will increase output as fast as it can obtain skilled tire builders. Unfilled orders are said to total several thousand casings. Two new lines have been added for small cars, "Scout 49" (clincher fabric) and "Coast Ranger" (clincher and straightside cord), illustrated on another page. John I. Pankratz is vice-president and sales manager.

The Fresno Tire & Rubber Co., has nearly completed its $126,000, three-story, 60 by 250 foot plant at Selma, near Fresno, California, and is installing tiremaking and other rubber machinery at a cost of nearly $150,000. According to J. H. Christian, president, whose office is in the Mattei Building, Fresno, the factory will start operations soon after December 1.

Ralph Bouthelier, former superintendent of the Givens Rubber Co., San Francisco, is now superintendent of the new National Consolidated Rubber Co., Second and Howard streets, of which C. V. Shipley is sales manager. Tires, tubes, and various automobile accessories of hard and soft rubber will be made.

Pacific Coast Notes

Production but little less than in midsummer is reported by The Spreckels "Savage" Tire Co., San Diego, California. Sales are excellent, particularly for the new heavy cord tires. M. F. Low, assistant sales manager, recently returned from a tour in nearly every state on the coast and in the intermountain section, where he arranged for marketing "Savages" on a bigger scale than ever.

The Firestone Tire & Rubber Co. has moved into the recently constructed branch office and warehouse in Phoenix, Arizona, and reports southwestern trade as very satisfactory.

The plant of the National Airless Tire Co., Norwalk, California, of which concern C. H. Braden is secretary and production manager, has been quite completed, and the daily output is steadily increasing. The company plans to start an aggressive selling campaign soon.

H. C. Jurgewitz, Spokane branch manager for the Diamond Rubber Co. during the past year, and for ten years branch manager for The Goodyear Tire & Rubber Co., has taken the position of manager of the new Jack Tire & Rubber Co., Spokane, Washington.

G. A. Stitzler of Tacoma, Washington, has patented a semi-fluid material called Seal-Em, which when inserted into an inner tube is said to eliminate punctures and slow leaks and to reduce blowouts to a negligible minimum. Seal-Em is being widely marketed on the coast.

A lively business in heels and micellaneous mechanicals is reported by the Huntington Rubber Mills, Portland, Oregon.

Canadian Notes

W. B. Wiegand, formerly director of rubber production for Ames Holden McCready, Limited, Montreal, Quebec, Canada, has been appointed general manager. Business so far this year has been excellent, sales of tires and footwear having increased more than 50 per cent over those for the corresponding period in 1921.

The Rome Wire Co., Rome, New York, manufacturer of insulated wire and cables, is to build an $80,000 factory branch, 40 by 250 feet, two stories high, at Niagara Falls, Ontario, Canada, and plans are now being completed.

The Shoe Store Specialties Co., Toronto, Ontario, Canada, recently opened as importers and distributers to sell to the wholesale shoe findings trade, will handle, among other lines, rubber heels manufactured by the Bailey Rubber Heel Co., 52 Chauncy street, Boston, Massachusetts, U. S. A.

A newly chartered concern, capitalized at $2,500,000, is the Lion-Mead Rubber Co., Limited, 13-14 Lindsay Chambers, 59 Main street, Hull, Canada, which will manufacture tires, tire casings, inner tubes, its patented "Mead" valve, and other rubber accessories. The officers are: Heman H. Lang, president; J. U. Archambault, M. D., vice-president; J. A. Valin, secretary-treasurer. Plans for a modern factory to cost about $55,500 have already been drawn, and bids will be called for at an early date.

A NEW ITEM IN SANITARY GOODS IS THE "SEMIBLOOMER," serving as sanitary belt and apron in one. It is made of silk or lignette and has a rubber center portion. The gathers at the top and back of the knees are held by elastic webbing and there is a removable front tab.—The Schafuss Corporation, 466 Broome street, New York, N. Y.

Manufacture of Separators for Electric Storage Batteries[1]

Wood Separators—Special Types—Hard Rubber Separator—The Making Process

By William Roberts[2]

THE function of the separator is as the word implies. It separates the positive and negative plates in the storage battery. A great deal of science and care is necessary in the design and manufacture of battery jar separators which are made of wood, glass, specially treated combinations, and hard rubber which is most used and considered the best.

Wood Separators

The wood separator is made from basswood, cypress or cedar. Redwood has been known to be used, with no exceptional results, however. The wood separator is cut into shape and thickness with a specially designed grooving machine. One side is smooth and the other side has a series of grooves. The separators are then treated chemically to neutralize the organic matter they contain, which might be injurious to the finished battery. Wood separators must at all times be kept moist, even during transportation.

Special Separators

Glass separators are used only for stationary settings such as home lighting outfits, etc. They are never used in automobile storage batteries as vibration is sure to crack or break them, causing a short circuit between the positive and negative plates. There are also specially treated combinations concerning the manufacture of which little is known. These are specialties of individual storage battery manufacturers.

The Hard Rubber Separator

The hard rubber separator which is generally used is made in several types. Hard rubber is considered to be the best material because it covers all the specifications that practice or that the scientific mind has evolved. The separator should be flexible and yet have the proper toughness so that it will not crack nor easily break. Acid does not attack hard rubber which makes it an almost permanent battery plate insulator.

Battery separators may be had either with or without ribs and with perforations ranging from 16½ to 29½ per cent porosity. With some manufacturers the porosity represents the portion of the area of the perforations to the total area, and with others, the porosity is obtained by weighing a section of a sheet both before and after perforation, thus obtaining the difference in weight of both sheets and figuring the per cent of weight of the unperforated sheet.

Making Rubber Separators

The raw stock after being compounded is calendered to proper thickness on an extra large drum so that the stock can be handled in long strips. The stock is then rolled between strips of tinfoil. This is done on steam heated tables in a manner similar to that employed in preparing ordinary hard rubber stock.

The sheets are then stacked on boiler plate. A sheet of manila paper is first laid on the plate, then several layers of prepared stock incased in tinfoil, then another sheet of paper, until a total thickness of ¼ to ⅜-inch is obtained. The paper is used so that when it is immersed in water for vulcanization, it will become saturated with water and help to vulcanize the large sheets which later will be made into separators. When a maximum thickness of ⅜-inch is obtained, a couple of sticks about ¾-inch square are placed on each end of boiler plate and another boiler plate balanced on these two blocks of wood. The reason for this arrangement is to insure that the water will have a free circulation during vulcanization. The size of tanks generally used is 3 feet wide by 3 feet high by 7 feet long.

Vulcanization

The tank is then filled with water and the stock vulcanized overnight. It is given approximately a 4-hour cure at 60 pounds with a temperature of 310 degrees F. It generally takes ¾ to 1 hour for rise of temperature and is then kept constant. This only semivulcanizes the stock so that it will be easier to perforate the sheets which are later fully vulcanized in a soapstone bath. After vulcanization the tinfoil is stripped from semivulcanized stock, which is then prepared for perforating. Care should be taken not to crack or tear the sheets while removing the tinfoil.

Perforating

An automatic perforating machine is now used, one inch on each side of a sheet being allowed for trimming, as the water cure spoils the edges. One man can take care of about three machines.

Forming Ribs

Special molds are required for forming the ribs and both halves of the molds are hinged on one end. The tubing machine forms the raw rib stock in approximately the shape of the finished rib. These ribs are handled in about 4-foot lengths. The ribs are then laid in the mold cavities according to the design and the perforated sheet, which has been cut to the proper size on a power paper cutting machine, is placed in between the two parts of the mold. The mold is then placed in an arbor press. Two sets of molds are generally required. While one mold is in the press taking the proper form, the other is being used by the operator to prepare the next separator.

When taken from the arbor press the separators are systematically arranged in trays of soapstone dust, care being taken that they do not touch each other in any way. This does away with having an individual mold for every separator while receiving its final cure. These trays are then arranged in a large heater where the separators receive the final vulcanization. The cure is for seven hours at about 50 pounds, and is usually done overnight.

Grinding

The edges of the separators are then ground to customer's size and smoothed up in general which is partly done on a belt grinding machine for the edges and on a specially designed machine for the thickness. The thickness of the separator is important so that a great deal of care is given this part.

Cleaning

The separators must be free from any kind of dust, especially the emery dust caused by grinding. A special machine is designed which removes all foreign particles from the separators which then receive the final inspection for flexibility, size, thickness, cracks, loose ribs and for cleanliness.

READY FOR MAILING. "PNEUMATIC TIRES," by HENRY C. PEARSON. An encyclopedia of tire manufacture, repair, rebuilding, machinery and processes.

---

[1]This article is not to be republished without permission of the author.
[2]Consulting Engineer, Springfield, Massachusetts.

The Repair of Rubber Footwear

Repairing Boots and Shoes

A rubber boot or shoe repair is prepared the same as an inner tube or casing repair job. Quick cure cement and repair stock must be used to effect a speedy repair as rubber footwear should be heated as little as possible to avoid damaging the fabric linings.

A crack or break above the sole or heel is first buffed or sandpapered to remove the glaze or smooth shiny surfaces. Give one coat of quick cure or inner tube cement, and allow it to dry well. Apply black repair stock for boots in the same manner as making a repair on an inner tube. Then place the job over the foot-like form of the vulcanizer, and at the point where the repair is to be made adjust the boot or shoe so that a smooth surface is underneath in direct contact with the place to be repaired. By loosening the little set screw on the pivot ring of the revolving arm, the arm is moved around the inside boot mold directly opposite the place to be repaired, and the set screw tightened.

Miller's Footwear Vulcanizer

This unit is so constructed that the revolving arm can be moved entirely around the complete circle. A cloth tape is stretched around the tightened clamp and then over the point of the boot or shoe to be repaired. This is done several times and then the tape is fastened. By tightening two thumb screws on the tape clamp, any desired pressure can be obtained on the toe or other places around the sole or instep. With this device a very neat repair can be made at any place above the soles or heels.

Half-Soling or Heeling

A boot or shoe to be half-soled or heels to be built up are first buffed to remove the glaze and to roughen the surface. Then two coats of tube or quick cure cement are given, and allowed to dry thoroughly, after which two plies of regular repair tread stock, black, red or white, are applied. Place the inside sole last inside the boot or shoe, which is then set into the proper sole plate to fit the curved surface. After rolling down the boot top so that the auxiliary clamp can be placed in the little slot on the top of the inside sole last, either the large wish-bone clamp furnished with the regular outfit, or the Jumbo "C" device is fastened to the auxiliary clamp. With either of these devices great pressure can be obtained. From 500 to 1,000 pounds pressure is required for half-soling or heeling. Steam pressure should be from 35 to 50 pounds to the square inch.

The mold should be well heated before placing in the boot, and the job is cured from 30 to 50 minutes according to thickness of the repair, the same as repairs on casings with tread stock.

It is possible to use tube repair stock if a quick cure is desired, but this will not have the long wearing quality like good tread stock.

In building up heels or putting on new heels the boot is prepared the same as in half-soling and rubber gum applied to build up the heel to the proper height. The boot is then set over the proper heel plate or heel mold and clamped as when attaching half soles.

Three Methods for Reclaiming Balata[1]

Belting is the most important article containing balata. The recovery of the balata from such belting scrap is effected by one of three methods, by acid, solvent, or mechanical means.

Acid Method

The acid method is the simplest one for separating balata from cotton belting. The cotton is, however, completely destroyed and the recovered balata is of very poor quality, in fact, inferior to the lowest commercial grade. However, the process is widely adopted owing to its simplicity and cheapness.

The plant consists of acid proof boiling vats with a means of heating and other vats for washing the stock. The boiling vat is filled with scrap belting and equal quantities of water and commercial hydrochloric acid are added. Five gallons of acid and five of water are sufficient for a hundredweight—112 pounds—of belting scrap.

On heating, the balata softens and the cotton fabric is destroyed by the acid. When the whole is reduced to a paste free of lumps the mass is cooled, setting to a stiff paste, and is removed with a spade. The balata is then washed on a screen, thereby removing the greater part of the acid. It is then transferred to a second vat containing boiling water and some soda to neutralize the remaining acid. After about an hour of boiling the balata rises to the surface, is skimmed off and transferred to wooden molds.

Solvent Process

Balata recovered by the solvent process is not injured in the slightest. The cotton also is not destroyed and is salable. The plant required is somewhat elaborate and extensive although the working costs are low. The exact construction of the plant depends on the solvent used. Benzol, gasoline, carbon tetrachloride and carbon disulphide are the solvents most frequently employed. If the balata is disposed of in solution the solvent used must be the same as that employed by the manufacturer using the solution. If produced in the cake form any of the solvents may be utilized. The determining factor is usually financial.

Benzol and gasoline do not leave the cotton in as good condition as the other solvents named. Carbon tetrachloride has a powerful solvent action on balata and leaves the cotton very clean. It also has the advantage of non-inflammability. It is expensive and has a tendency to partially decompose liberating hydrochloric acid which will destroy cotton.

Carbon disulphide should be employed only when it is desired to produce a carbon disulphide solution for use as cement. This solvent is expensive, very inflammable, and its fumes are very offensive and detrimental to health. Its odor is difficult to remove from the cotton which reduces its value considerably.

Mechanical Method

The plant required by the mechanical method is inexpensive but the quality of balata and cotton recovered by the process is much inferior to that produced by the solvent process. The plant is simply a disintegrator and winnowing machine which shreds the belting. The shredded material is graded by an air blast from nearly clean balata, through various mixtures of balata and cotton, to clean cotton. The middle grade may be sheeted and reshredded for further separation or acid treated to remove the cotton fiber.

[1]The India-Rubber Journal, March 25, 1922, pages 19-20.

The Rubber Industry in Great Britain

By Our Regular Correspondent

Plantation Rubber Control Activities

Now that it is settled that no help is to be obtained from Dutch interests in ameliorating the unsatisfactory position of the eastern plantations, renewed pressure is to be put upon the government to take action on the lines proposed in the report of the Stevenson Committee of the Colonial Office. A resolution has been passed unanimously by the R. G. A. Council inviting the Colonial Office to introduce a scheme provided that the voluntary assistance of the British and other interests operating in the Netherlands Indies and elsewhere can be obtained to an extent sufficient, in the opinion of the committee, to make the scheme effective. The resolution urges that if an export duty scheme be adopted, the maximum duty on the lowest percentage of standard production be fixed at the lowest possible rate, so as not to inflict further heavy taxation upon producers, and that in the settlement of details of the scheme and its administration producers shall be consulted.

With regard to this resolution, newspaper comment is not very hopeful of good resulting, both protectionist and free trade writers predicting that the producers will have to work out their own salvation. This, it is stated, will have to be in the direction of reduced production costs, and the results achieved by the Selangor United Rubber Estates, which in the past year have reduced their costs from 1*s.* 2.23*d.* all in to 7.70*d.* per pound, are held up as an example.

The India Rubber Regulations, 1922

Reference has previously been made in these columns to the proposed government regulations regarding the use of lead compounds in rubber works and the view expressed that they would press hard upon the small manufacturers who use only a little litharge. It is interesting, therefore, to note that certain firms have now put upon the market mixtures of pure rubber with various lead compounds. Such mixtures containing as much as 80 parts of lead compound to 20 parts of rubber are sold in the form of thin homogeneous sheets ready for the mixing rolls. In this form no dust is given off by the lead during the mixing, and after due consideration the government authority has decided that the mixtures do not come under the new regulations. The rubber manufacturer who uses them will therefore be free of control and of any necessity to carry out or to arrange for the carrying out of the Thorpe solubility test. Of course the firms which prepare the rubber-litharge mixture will come under the law, but as they deal principally with lead compounds and are already ruled by legislation, no adaptation to new procedure is necessary on their part.

It is not yet known to what extent rubber works have become customers for this lead compounded rubber, but other projects may interfere with its adoption. There is the enclosed mixer, for instance, though this means additional expense. Then it has been proposed to mix the litharge with some sort of oil or wax so as to prevent the dust flying. It will probably be found, however, that large works will use hoods over the rolls coupled with mechanical ventilation.

Dunlop Shareholders' Meeting

At a recent shareholders' meeting a resolution was passed giving Sir Arthur Whinney and the three other investigators power to take evidence on oath, and making the officers and agents of the company liable to a fine for refusal to produce books and documents or to answer questions. Sir Arthur Whinney had said, it was reported, that statements of a serious nature had been made which rendered it requisite for evidence to be taken on oath. The chairman, Mr. Szarvasy, stated that accounts for the ten months to June 30 were being audited and it was hoped to call the annual meeting early in October.

Institution of Rubber Industry

At the Manchester Section on September 25, Dr. J. Torrey, of the Northwestern Rubber Co., Limited, Liverpool, read a paper on "Reclaimed Rubber," which was followed by a good discussion to which more reclaimers than users contributed. The author, who was described by J. Mandleberg, the chairman, as the world's greatest authority on the subject, was inclined to take a somewhat pessimistic view of the future of the industry in this country. Owing to the depression in trade the demand has fallen off and there is also the factor of cheap raw rubber to contend with. Prices cannot be reduced much because manufacturing costs, the principal item making up the selling price, remain high.

The great difference between reclaiming practice in America and England is that while America concentrates on five or six standard products, English manufacturers have to make about a hundred to supply the demand of individual customers, and this makes the cost of production higher. Whereas in America reclaimed rubber is, in many classes of goods, the staple material to which additions of rubber mineral, etc., are made, in Britain it is an addition only. Formerly, he said, fluctuations in the price of raw rubber had little effect on either the demand or price of reclaimed, but today when the best crêpe is down at 7½*d.* per pound all is different and it is difficult to make out a case for reclaimed.

Merits of Reclaimed Rubber

Having said that it was difficult to laud the merits of reclaimed today, Dr. Torrey proceeded to do so in what appeared to many to be an effective manner, and other reclaimers in the ensuing discussion supported his contentions. He claimed that it is steadier in both price and quality than even crêpe rubber, almost impossible to injure in the mill, an accelerator of vulcanization, invaluable in tubing machine work, and moreover a saver of time and labor. This last qualification was emphasized and this saving of time and labor, or, in other words, working costs, is evidently looked upon by Dr. Torrey as likely to be the principal factor in the industry's salvation. Though other possible sources of help, if not salvation, were referred to by Dr. Torrey, he did not mean to expect much from them, though in respect to rubber blocks for roadways he thought that the superiority of reclaimed over new rubber could be demonstrated.

The Discussion

In the discussion B. D. Porritt did not agree that rubber could be reclaimed over and over again without showing deterioration. His experience had been to the contrary. M. H. McKusick and E. L. Curbishley, both connected with large reclaiming works, dissociated themselves from Dr. Torrey's pessimism, thinking that matters would eventually come right. Mr. McKusick referred to the recognized practice of using reclaimed rubber in the boot and shoe trade where its difference in hardness and set makes it stand the vulcanization process better than where new rubber is used. Scrap iron, he said, is essential in making new metal, as it has a certain fluxing effect and he claimed that reclaimed rubber plays a somewhat similar part in many rubber goods. The statement that such large concerns as the Michelin Tyre Co., Limited, and the Goodyear Tyre Co., Limited, have

their own reclaiming plants came as a surprise to many in the room.

Judging by some of the speeches there seems no doubt that the government's ban on reclaimed has had an adverse effect upon the industry. J. H. C. Brooking said he had not heard any arguments from the apostles of reclaiming as to why the product should be used and Mr. Gray did not see that it can be of much use to the manufacturer today.

Mr. Curbishley said it has been found that the use of reclaimed rubber is very beneficial in tires and that not only are they less subject to gashing, but they last longer than tires made with all pure rubber. A cablemaker said that the use of some reclaim has been proved beneficial in insulation, but his firm has been obliged to cancel a large contract made with a reclaiming firm because the rubber was not free from metal.

H. W. Hatton spoke about a large ground sheet order containing 40 per cent of reclaimed, that had been authorized by the War Office, but which was cancelled at the Armistice.

Another reference was to Dr. Torrey's statement that reclaimed did not alter in price when rubber went from *2s. 6d.* to *12s. 6d.* per pound, the speaker's own experience being that there was a considerable difference.

Dr. Torrey's Reply

Dr. Torrey in his reply said with regard to solubility that in his experience there is no such thing in regard to reclaims; that no real solution can be obtained. He had been asked why they cannot educate the buyer. His answer was that they have tried to do so, but with such poor success that the attempt had been abandoned. All they can do is to give the buyer what he asks for. With regard to age and weathering properties, he had had samples exposed to atmospheric conditions for years and he had conclusively shown the superiority of reclaimed to pure rubber, vulcanized and unvulcanized.

The question of metal in plain rubber stock is most complicated and difficult, and the statement that it is impossible to eliminate it entirely is perfectly true. It is simply a question of the limit to which it can be reduced, and they have reached a point where stocks can be produced which are clean enough to be used for ordinary insulating work. There was no doubt in his mind that much of the metal is due to the wearing of machinery and small metallic particles in the air of the mill.

In response to a request from the chairman, Dr. Torrey said something about the cooperation which exists between rubber manufacturers in America. Things certainly are rather different in America from what is the case in England, but it is of no use trying to change people from what they are and each country has its own ways. There are no rubber secrets now; competitors' formulas can be found out by the chemist in the laboratory. This statement, it was clear from remarks made in subsequent conversations among the audience, certainly did not meet with general acceptance.

ENGLISH NEWS NOTES

A. MacKenzie Hay, 26 Ludgate Hill, E. C., London, has been appointed representative in Great Britain for the Black Rock Manufacturing Co., 175 Osborne street, Bridgeport, Conecticut, U.S.A., manufacturer of rubber machinery.

The Reliance Rubber Co., Ltd., 212-213 Upper Thames street, London, E. C., has been appointed distributer in Great Britain for the "Fast Flight" practice golf ball manufactured by The Faultless Rubber Co., Ashland, Ohio, U.S.A.

Kaye's Rubber Latex Process, Ltd., capitalized at £12,000 to acquire the Kaye rubber-latex paper patents, has offices at 161 New Bond street, London, England. Directors: Frederick and Mrs. Kaye, J. Fairbairn, E. D. Money, J. van den Berg, and D. L. F. Zorn.

The Rubber Trade in Europe

By Our Regular Correspondent

Germany

The German business man views disconsolately the exchange quotations and wonders how soon Germany will be in the same condition as Austria or perhaps even Russia. The feverish activity caused by the rush of Germans to convert paper marks into goods had a buoyant effect but money is scarce and buyers are beginning to hold off so that home consumption seems to be lessening. The price of raw materials is prohibitive and manufacturers will be in difficulties when the time comes to pay for raw materials purchased from foreign countries, when the mark was 500 to the dollar; now they will have to pay in foreign money which is beyond all calculations.

Some divisions of the rubber industry have been particularly hard hit by the recent increase in prices due to the exchange situation, and dipped goods, for which quantities of expensive solvent are required, are in a particularly bad position. Many manufacturers will cut down their output and some will stop making seamless goods for the time being.

The situation and means for remedying it are widely discussed. One scheme provides for a combine of all rubber manufacturers, whereby a central body would receive orders and distribute them among those members best equipped to turn out the goods. Costs would be cut down to a minimum and the quality of the goods improved. It is also reported that the different associations of the German raw materials trade are working hard to form a combine.

Meanwhile prices attain more and more fantastic heights. Thus insulating rods, according to the material they are made of, are 3,600 to 6,500 per cent higher than they were in October, 1921. Seamless rubber surgical goods, excepting preservatives and pessaries, are 2,100 per cent higher; preservatives and pessaries 1,800 per cent; sheet rubber goods, hard rubber goods, mineralized rubber goods, catheters, 1,200 per cent; bathing caps, sponge bags and tobacco pouches 800 per cent higher; asbestos goods 2,500 and 2,000 per cent higher.

Leipzig Fall Fair

This season's fair has not been as successful as was expected. While foreign buyers were ready to take advantage of the low exchange rate, the local consumers held off on account of the ever-increasing prices. Household necessities and particularly jar rings reported fairly good business with local buyers. A feature of the fair was the exhibits of Austria and Czecho-Slovakia.

The Elastic Webbing Trade

The elastic webbing trade of the Wuppertal appears to be very active. Orders for prompt deliveries from local buyers as well as from abroad, particularly Spain and Italy, are especially numerous. The industry has many difficulties to overcome. There is a shortage of rubber thread, and cotton and artificial silk thread are obtained with great difficulty. Artificial silk ribbon for shirring costs 70 to 80 marks a meter, and a pair of garters cannot be made for less than 130 to 150 marks. Webbing for suspenders costs 35 to 40 marks; shoe elastic, about 13 cm. wide costs 175 marks per meter.

German Trade with Switzerland

German goods have to a considerable extent regained their former foothold in Switzerland. In 1921, the greater part of the import of technical rubber goods, surgical rubber goods, heels, and toy balls, was supplied by Germany. However, the new tariff limits Germany's rubber imports to a fraction of the pre-war imports. The aim has been to protect the manufacture of technical goods and druggists' sundries. The fact is, Swiss manufacturers can produce neither as cheaply nor in such variety as the Germans.

In 1919, American tires were imported in large quantities but poor sales organization and competition of cheap French makes have diminished these imports.

During 1921 German tire imports were second on the list of supplies of these goods. Prices are below those for 1914, owing to the high rate of the Swiss franc and the low price of crude rubber.

German Notes

Max Polack, the founder of the Gummiwarenfabrik M. u. W. Polack in Merseburg, died last month. He was well known as a solid tire expert, both at home and in England, America, and Russia, where he acted as technical adviser.

The Mannheimer Gummistoff Fabrik, Rode & Schwalenberg, G. m. b. H., Mannheim, celebrated its 25th anniversary on September 15. This firm was the first to specialize in rubberized fabric in Germany. The founders of the firm Reinhold Schwalenberg and Friedrich Rode died a few years ago. The manufactures include water cushions, air-cushions, hot-water bottles, ice bags, hygienic goods for travel and bath. In the rubberizing department hospital sheeting is the chief product.

France

The Société Chimique des Usines du Rhône had net profits amounting to 2,600,359 francs last year. A dividend of 6 francs per share will be paid.

The Anciens Etablissements J. B. Torrilhon report a loss of the year's (1921) working amounting to 603,000 francs as compared with a profit of 1,228,601 francs the year before. The carry forward will be used to reduce the adverse balance to 293,000 francs and this remainder will be cleared by using part of the reserves.

Italy

The Società Italiana Pirelli has recently celebrated its fiftieth anniversary. On this occasion a historical museum of the rubber industry and the electric cable industry was inaugurated.

Foreign Tariffs

Angola (Portuguese West Africa)

A revised scale of export duties, dated July 8, for Angola (Portuguese West Africa) includes a reduction of the duty on rubber exported from ports outside the Congo Basin. The rates are now 0.1 per cent and 0.2 per cent ad valorem, respectively, according as the rubber is destined to national or foreign (non-Portuguese) ports. In the case of rubber exported from ports within the Congo Basin no duty will be leviable.

Hungary

A special permit is now necessary for the importation of the following goods into Hungary, as specified in the decree of August 29.

Tariff No.	Goods
305-6 and 308	India rubber solution; india rubber paste; india rubber sheets, unvulcanized, cut, coated, rolled (patent sheets).
ex 316	Elastic materials woven or knitted, made of silk.
ex 320	India rubber articles for technical purposes, except transmission belts and carding tissues.
ex 388	Glass and enamel wares, not specially tariffed, combined with rubber, leather, and non-nickelled parts of iron or other common metals.

Iraq (Mesopotamia)

Certain goods imported into Iraq (Mesopotamia) are now dutiable at 11, 15, and 20 per cent ad valorem. In the latter class are included pneumatic tires and tubes.

Nigeria

An Order-in-Council, dated June 22, 1921, has revoked a previous prohibition which forbade the importation into Nigeria of solid and double tires, whether solid or pneumatic, for motor vehicles; of motor vehicle wheels adapted for such tires; and of motor vehicles fitted with wheels adapted for such tires.

Spain

According to a reliable authority, the recent order providing for the sealing and marking of tires imported into Spain has been reversed and such regulations are not to be enforced.

The Rubber Trade in the Far East

By Our Regular Correspondent

Malaya

The news that the Dutch Govèrnment has refused to cooperate in compulsory restriction has caused keen disappointment here, and now it seems that Malaya will have to carry out the policy of restriction by herself. What the result of such action will be is dubious, and various suggestions have been offered for handling this matter. Some would levy an extra tax on all rubber coming to Singapore from the Dutch possessions, which of course would cause the Dutch to avoid Singapore to the detriment of this port. Others suggest that countries buying from the Dutch should be denied rubber from Malaya. This clearly points to America whose annual crude rubber needs far exceed the total output of the Dutch colonies.

On the other hand, advocates of the lone-hand policy can see only benefit for Malaya and imposing columns of statistics are drawn up to show the immense profits that will result. Of course it is agreed that if the Dutch would enter, the profits would be still greater.

The *Straits Times* thinks that if the Dutch would not increase production over their 1920 output, Malaya could take care of herself very nicely.

All things considered, however, it seems as though any scheme for restriction by Malaya alone would mean a hard fight as the opposition is pretty strong.

One is inclined to sympathize with the Malayan producer; he is on the horns of a dilemma; shall he restrict alone or shall he not restrict alone? Then there is the specter of the American capitalist ready to snap him up as soon as he shows signs of getting wabbly. This specter has loomed very near and substantial of late, owing to the reports of the £50,000,000 scheme for buying and working plantations in the East. The news of large forward sales by some producers in the Dutch colonies is regarded as being of sinister import.

Other Crops

A beneficial effect of the slump has been to draw the attention of local producers to crops other than rubber, like cotton, sisal, arghan, cocoa, etc. Of course, the shortage of capital will hinder the development of new industries to some extent, but it is hoped that the new interest in crop variety will have a permanent and beneficial influence. There is danger, however, that planters will turn to one product like arghan, for instance, and eventually commit the same indiscretions as they did in connection with rubber.

Bud Grafting

In regard to bud grafting, the department recognizes the importance of the question involved and has been giving considerable attention to this. Several estates with reserves have planted budded stocks.

Department of Agriculture

From the 1921 report of the Department of Agriculture we learn that the two principal diseases of rubber were pink disease and moldy rot. The low prices of rubber and the consequent neglect, have been chiefly responsible for the increase of moldy rot on small holdings. However, special provision was made by the department for dealing with the situation and the campaign resulted in satisfactory control. As to brown bast, the very conservative methods of tapping due to voluntary restric-

tions has kept this disease in check. On the other hand, a new fungus has been observed attacking branches of badly grown rubber trees and also a branch canker which has not yet been investigated.

Inferior Crêpe Soles

The crêpe rubber sole has become very popular and now an inferior substitute is being put on the market by competitors. Old stocks of rubber are being broken down and rolled out in imitation of the real article. The genuine crêpe sole is of a gristly texture, tough and resilient; the imitation is soft and gelatinous, and lacks durability.

Malayan Statistics

From statistics published in the *Agricultural Bulletin of the Federated Malay States* for the third quarter of 1921 it appears that the areas under rubber in the Federated Malay States during 1919 and 1920 were as tabulated below:

MALAY ESTATES OVER 100 ACRES

	Selangor		Perak		Negri Sembilan		Pahang		Total	
	1919	1920	1919	1920	1919	1920	1919	1920	1919	1920
Number of estates	415	431	413	424	330	332	63	80	1,221	1,267
Acreage in possession	426,620	435,272	382,018	387,135	291,126	301,680	67,279	77,602	1,167,043	1,201,689
Acreage planted up to end of 1919, 1920	287,008	296,868	234,368	247,058	193,148	208,602	22,218	26,642	736,742	779,170
Rubber alone	280,634	293,932	226,672	244,463	187,243	206,809	21,150	26,321	715,699	771,525
Rubber with catch crops	6,374	2,936	7,696	2,595	5,905	1,793	1,068	321	21,043	7,645
Acreage producing	205,750	219,511	168,366	175,723	107,786	113,456	8,470	9,258	490,372	517,948
Planted in 1919, 1920	15,415	9,860	14,887	12,690	27,949	15,454	6,385	4,424	64,636	42,428

STATISTICS FOR ALL MALAYA

	Federated Malay States		Johore		Kelantan, Kedah Trengganu		Straits Settlements		Total	
	1919	1920	1919	1920	1919	1920	1919	1920	1919	1920
Number of estates	1,221	1,267	149	149	257	270	269	319	1,896	2,005
Acreage in possession	1,167,043	1,201,689	364,270	365,426	286,869	328,377	273,353	281,044	2,091,535	2,176,536
Acreage planted to end of 1919, 1920	736,742	779,170	174,820	179,616	146,720	158,153	178,524	186,379	1,236,806	1,303,318
Rubber alone	715,699	771,525	171,959	178,043	129,779	150,569	172,191	182,918	1,189,628	1,283,055
Rubber with catch crops	21,043	7,645	2,861	1,573	16,941	7,584	6,333	3,461	47,178	20,263
Acreage producing	490,372	517,948	96,324	100,683	50,774	54,354	114,516	122,693	751,986	795,678
Planted in 1919, 1920	64,636	42,428	8,704	4,796	28,488	11,433	6,610	7,855	108,438	66,512

RUBBER CROPS IN MALAYA, 1911-1920

	Selangor	Perak	Negri Sembilan	Pahang	Johore	Kelantan Kedah Trengganu	Malacca	Province Wellesley
	Tons cwt.							
1911	5,106-14	2,697- 4	1,918-12	13-18	404- 2	23- 0	382-11	571-15
1912	7,482- 6	4,116-18	2,518-16	74-14	968- 6	79- 6	1,742- 6	1,973-16
1913	10,110-15	6,623-17	3,339-16	155- 9	1,645- 7	246-18	3,549- 2	2,498-12
1914	12,601- 6	8,959- 7	4,203-18	337-17	2,861- 7	1,383-18	3,979-16	3,076- 8
1915	16,061-11	12,112- 1	8,138- 1	548-13	4,711- 2	1,955- 0	5,181- 1	3,177-11
1916	19,996-11	17,336-18	8,596-14	682- 8	6,840- 7	3,704-19	6,606-12	3,912-11
1917	24,573- 3	19,453- 2	12,223- 3	1,010-13	8,193- 7	4,729- 2	7,376-16	4,760- 1
1918	26,464-11	21,331-18	13,542- 4	1,179- 3	11,267-12	5,568- 6	7,721-19	5,203-15
1919	29,657- 6	25,231-11	17,504- 2	1,292- 6	12,426-18	6,719-16	8,016- 0	5,910- 0
1920	31,947- 6	27,129- 7	18,555- 4	1,512-14	13,358-10	7,713	9,079- 5	6,413-15

The total crops for Malaya during the years 1911 to 1920 were 11,117 tons 16 cwt. in 1911; 18,956 tons 8 cwt. in 1912; 28,169 tons 16 cwt. in 1913; 37,403 tons 19 cwt. in 1914; 51,885 tons in 1915; 67,677 tons in 1916; 82,319 tons 7 cwt. in 1917; 92,279 tons 8 cwt. in 1918; 106,757 tons 19 cwt. in 1919, and 115,709 tons 1 cwt. in 1920.

Planting Notes

The report of the Cicely Rubber Estates Co., Ltd., makes interesting reading.

The crop for the past year was 647,688 pounds against 636,688 pounds the year before. The cost of production was reduced from 10.26*d.* to 6.28*d.* per pound and it is expected to bring the figure lower still. The net average selling price was 9.91*d.* per pound against 1*s.* 2.34*d.* per pound in the previous year.

The gross profits amounted to £10,423. 1*s.* against £6,398. 16*s.*; to this must be added the proceeds from the sale of seeds, £406. 6*s.* 7*d.* as compared with £1962. 18*s.* 6*d.*, and the manufacture of outside rubber, £554. 19*s.* compared with £461. 8*s.* 4*d.* The cultivated area now stands on the company's books at £29 per acre. The company is taking up the manufacture of crêpe soles, mats, etc., and hopes to obtain increased revenue from the source. A final preference dividend of 2½ per cent was paid.

Apropos of the talk about the "survival of the fittest," M. Maude declared that in 1904 when the Cicely estate had been abandoned for three years, and after clearing the jungle, the trees gave better results than ever before, just because they had had a long rest. Therefore, in his opinion the idea of the survival of the fittest is absolute nonsense.

Netherlands East Indies

A comparison of rubber producing companies in different parts of the Netherlands East Indies during the first five months of 1920, 1921 and 1922, shows that 228 estates in Java and Madura produced 10,797,003 kilos of rubber during the first five months of 1920; 9,382,084 kilos during the corresponding period of 1921 and 9,898,313 kilos in January-May, 1922; that is, the 1921 product was 87 per cent of that for 1920 and the 1922 crop 92 per cent of that for 1920.

The reduction in 1921 was chiefly due to restriction and in the second place to the fact that 19 estates stopped tapping. On the other hand, the 1922 decrease was for the most part due to cessations of exploitation on 38 estates.

In the Outer Possessions, 134 estates, mostly in Sumatra, produced 9,601,187 kilos in the first five months of 1920, 7,808,500 kilos in the corresponding period of 1921, and 9,532,317 kilos during January-May of 1922. The decrease in 1921 against 1920 was 19 per cent, but in 1922 the output was 99 per cent of that for 1920. Here again restriction and the stopping of work on seven estates accounted for the decrease in 1921, while the small reduction of 1922 was principally due to cessation of tapping on three estates.

Taking the Java crop for the first five months of 1920 as 100, we find by comparison that 19 estates in 1921 produced nothing; 10 produced up to 50 per cent; 34 from 50 to 75 per cent; 86 from 75 to 100 per cent; 53 from 100 to 125 per cent; 12 from 125 to 150 per cent and 14 over 150 per cent. As for 1922, the Java figures are: 38 estates produced nothing;

6 up to 50 per cent; 31 from 50 to 75 per cent; 53 from 75 to 100 per cent; 43 from 100 to 125 per cent; 19 from 125 to 150 per cent and 38 over 150 per cent.

Turning to the Outer Possessions, we find that in the first five months of 1921, seven estates ceased production; seven had a crop of up to 50 per cent of their 1920 output; 33 produced between 50 and 75 per cent; 47 between 75 and 100 per cent; 27 between 100 and 125 per cent; six 125 to 150 per cent, and seven over 150 per cent. For 1922 the figures are: three produced nothing; five produced up to 50 per cent; 22 from 50 to 75 per cent; 38 from 75 to 100 per cent; 28 from 100 to 125 per cent; 16 from 125 to 150 per cent, and 22 over 150 per cent.

Tapping and Bud-Grafting Experiments

The report of the general experiment station of the A. V. R. O. S. (General Association of Rubber Producers of East Coast of Sumatra), covering the period July, 1921, to June, 1922, gives the results of tapping experiments. Of three methods—daily tapping, alternate daily tapping, and alternate fortnightly tapping, the last proved to be the most advantageous.

During the year under review the experiment station supplied members with almost 4,000 meters of bud wood, that is almost 40,000 eyes. In the coming year it is hoped to supply at least 10,000 meters with 100,000 eyes. The number of acres planted with budded stocks on the East Coast of Sumatra is estimated to be between 3,000 and 4,000. If the results are satisfactory, the area devoted to the planting of budded stocks will naturally be considerably extended.

Another important question is that of rejuvenating old rubber plantations. On the Poeloe Tager estate belonging to the Deli Batavia Rubber Maatschappy about 20 bouws of 15-year-old rubber were cleared. The greater part of this land was planted with budded stocks from the experiment station and the rest with selected seed from good trees.

Referring to surface tillage, the report states that nowhere has this shown any advantages as far as the yield is concerned. In connection with this finding, Dr. O. de Vries reports that experiments show that alang-alang and high weeds do not result in any perceptible deteroriation in the quality of rubber. This should be good news to producers who are forced to cut out what has usually been considered to be necessary operations in connection with the upkeep of rubber estates.

Native Rubber Again

Ever since Mr. de Neve's article on native rubber, more attention has been centered on this question. The *Deli Courant* states that in the Outer Possessions the natives possess 45,000,000 rubber trees against 58,000,000 trees in the hands of Europeans. Consequently, he says, restriction would not work, for as soon as the price improved on account of restriction, native rubber would be produced to capacity and the market depressed.

If the native is really able to produce in quality and quantity at a lower price than the European, then the only effective method is not restriction but doubling or trebling the yield per acre by extensive adoption of bud-grafting.

Ceylon

The news that the Dutch Government has refused to take action in the matter of compulsory restriction has not caused much excitement in Ceylon. Of course the pro-restrictionists are disappointed but a good many producers are totally indifferent. Ceylon being a cheap producer will not be affected to the same extent as will Malaya.

Producers are fairly reticent on the question of the £50,000,000 organization for the purchase of rubber estates in the East. One prominent rubber man was suspicious of such a combine, but conceded, however, that the scheme might be of advantage to both buyer and producer. Another local authority believes that the combine might raise and stabilize prices.

New Ceylon Tariffs

The new duties proposed impose an export duty of 2.50 rupees per 100 pounds on rubber instead of 3 rupees. On the other hand acetic acid which was duty free is to be dutiable at the rate of 7½ per cent ad valorem. The rate on automobiles and accessories, including tires, is raised from 7½ per cent to 20 per cent. It is feared that the high duty on automobiles will cause a decline in the imports of the more expensive cars of British or Continental make in favor of cheap American cars.

India

According to official statistics of the rubber industry in India (including Southern India, Burma and Assam) the number of plantations in 1921 were 1,016, covering an area of 204,663 acres against 892 with an area of 196,990 in 1920. New land planted with rubber during 1921, so far reported, amounted to 5,635 acres, and the area of old cultivation abandoned to 4,990 acres, showing a net increase of 645 acres over the total cultivated area of 124,025 acres in 1920.

The total area under rubber therefore was 124,670 acres, of which only 60,721 acres were tapped. Of the total area under cultivation, 47 per cent was in Burma, 32 per cent in Travancore, 9 per cent in Madras, 7 per cent in Cochin, 2 per cent each in Assam and Coorg, and 1 per cent in Mysore.

The total production of rubber during the year was 9,056,430 pounds (Hevea 8,995,780 pounds; Ceará 47,520 pounds; Ficus 13,130 pounds), as against 13,788,908 pounds in 1920 (Hevea 13,655,094 pounds, Ceará 76,643 pounds, and Ficus 57,171 pounds). The yield per acre of tapped area was 199 pounds in Burma, against 243 pounds in 1920; 93 pounds in Cochin against 222 pounds; 170 pounds in Travancore instead of 199; 54 pounds in Madras instead of 142; 29 pounds in Coorg instead of 108; 53 pounds in Mysore instead of 62 pounds.

The total stock of rubber on December 31, 1921, was estimated at 3,115,079 pounds (Hevea 3,098,000 pounds; Ceará 11,520 pounds; Ficus 5,559 pounds), as against 4,999,769 pounds in 1920 (Hevea, 4,926,617 pounds; Ceará, 55,895 pounds; Ficus, 17,257 pounds).

The exports amounted to 11,000,000 pounds, showing a decrease of 21 per cent as compared with the previous year. Most of the rubber went to England. Madras accounted for 62 per cent of the trade and Burma for 38 per cent.

South Indian Exports

Statistics published by *The Planters' Chronicle* show that the total exports of rubber from South India during the first half of 1922 amounted to 2,764,464 pounds. Of this amount 1,231,564 pounds went to England, 624,952 pounds to America, 518,048 pounds to Ceylon, 288,824 to Indian ports and 101,076 pounds to Europe.

SUMATRA REQUIRES MANY RUBBER PACKING CASES

In Sumatra 400,000 cases are annually required for crude rubber shipment to the United States and Eutope, several kinds of these cases being used.

The most popular case on the market is a reinforced 3-ply veneer case of wood from Russia. This "Venesta" case is sold c. i. f. Medan, including a duty of 6 per cent, for 2.50 florins (florin equals about $0.38 at present rate of exchange). A Dutch firm at Sabang, Sumatra, has begun the manufacture of a 3-ply veneer case of local woods. This is known as the "R E T" case (rubber en tea). The price of this case is also 2.50 florins. The Japanese recently sold the "Momi" case here at about the same price.

All of these cases are 61 by 48 by 48 centimeters, or about 24 by 19 by 19 inches, inside measurement, and must be of sufficient strength to stand the handling in loading and discharging from steamers without breaking.—*Commerce Reports.*

Recent Patents Relating to Rubber

The United States

Issued* August 29, 1922

NO. 1,427,092 Cushion tire. M. Clark, Chicago; E. B. Clark, executrix, assignor by mesne assignments of ½ to W. A. Taylor, Chicago, and ½ to C. S. Burton, Oak Park, both in Ill.

1,427,128 Closure for preserve glasses. H. Schwieger, née Kipp, Hanover, Germany, assignor to H. Geering, Basel, Switzerland.

1,427,146 Tire pressure meter. A. A. Anderson, Hagerman, Tex.

1,427,277 Self healing inner tube. E. Fetter, Baltimore, Md.

1,427,278 Self healing inner tube. E. Fetter, Baltimore, Md.

1,427,302 Pneumatic tire. A. J. Kloneck, New York, N. Y.

1,427,331 Notched solid tire. F. W. Sherwood, Brooklyn, assignor to Kelly-Springfield Tire Co., New York—both in N. Y.

1,427,351 Container for mercury. W. H. Bowman, assignor to Goldsmith Bros. Smelting & Refining Co.—both of Chicago, Ill.

1,427,396 Toy airship. B. B. Keith, Mansfield, O.

1,427,429 Pneumatic cushion tire. A. Balaguer, Marianao, Habana, Cuba.

1,427,497 Bulb for pneumatic warning horns. J. F. Smith, Birmingham, England.

1,427,515 Iodine fumigator. W. L. Capell, Omaha, Nebr.

1,427,528 Sectional tire core. A. German, Akron, O.

1,427,536 Golf practicing apparatus. E. M. Long, New York, N. Y.

1,427,538 Golf practicing apparatus. E. M. Long, New York, N. Y.

1,427,708 Balloon fabric. W. A. Williams, assignor to The North British Rubber Co., Limited—both of Edinburgh, Scotland. (Granted under the provisions of the act of March 3, 1921, 41 Statute Law, 1313.)

1,427,711 Fountain pen. G. Bartle, S. Glickman, and L. Jacovitz, New York, N. Y.

1,427,754 Plastic bound permeable sheet material and process of manufacture. W. A. Gibbons, New York, and H. W. Ritter, Brooklyn, both in N. Y., assignors to American Rubber Co., a Massachusetts corporation.

Issued* September 5, 1922

1,427,771 Parachute vent. G. M. Ball, Spokane, Wash.

1,427,772 Fabric structure for parachutes and aerostats and method of construction. G. M. Ball, Spokane, Wash.

1,427,879 Waste basket with rubber buffer at upper edge. M. Weinman, Chicago, Ill.

1,427,897 Combined cushion and pneumatic tire. N. W. Finch, Chicago, Ill.

1,427,960 Hose supporter. J. Leonard, New York, N. Y., assignor to Fifth Avenue Corset Co., Inc., Allentown, Pa.

1,427,995 Cushion wheel. G. L. Allen, Detroit, Mich.

1,427,998 Airship, including gas bag, etc. T. Barrett, assignor of 1/20 to W. M. Murphy—both of Pasadena, Calif.

1,428,040 Tire and method of manufacture. G. D. Kratz, Akron, assignor to The Falls Rubber Co., Cuyahoga Falls—both in Ohio.

1,428,151 Bathing or life saving garment having inflatable tube. J. S. Drew, Perth, Western Australia, Australia.

1,428,223 Tire stand. C. T. Fairbanks, Chicago, Ill.

1,428,232 Shoe guard for rubber footwear. J. Holmen, Racine, Wis.

1,428,333 Fountain pen. D. B. Kaufmann, Cincinnati, Ohio.

1,428,356 Vulcanized sole of varying degrees of stiffness in different parts. M. Brown, Brookline, Mass.

1,428,382 Inner tube and method of making. M. A. Marquette, assignor to The Fisk Rubber Co.—both of Chicopee Falls, Mass.

1,428,417 Fountain pen. M. D. Davis, London, England.

1,428,465 Elastic kneecap or elbow bandage. J. D. Willmott, assignor to William H. Horn & Brother, Inc.—both of Philadelphia, Pa.

1,428,467 Tire armor. S. Andrews, New York, N. Y.

1,428,502 Tire pressure gage connection. O. H. Hansen, New York, N. Y.

Issued* September 12, 1922

1,428,524 Rubber heel. H. L. Beal, Brookline, Mass.

1,428,570 Self-sealing inner tube for automobile tires. H. N. Wayne, Washington, D. C.

1,428,571 Fibrillous tire. H. N. Wayne, Washington, D. C.

1,428,719 Cushion tire. W. D. Teller, Wasepi, Mich.

1,428,726 Pneumatic tire. N. G. Warth, Gallipolis, Ohio.

1,428,817 Tire. H. H. Swan, assignor to Grand Rapids Tire & Rubber Corporation—both of Grand Rapids, Mich.

1,428,862 Repair vulcanizer igniter. H. A. Sheet, Jr., New York, N. Y.

1,429,015 Inner tube with pleats or folds extending in accordion fashion around the tube when deflated, G. W. Bolser, Cleveland, Ohio.

1,429,031 Puncture healing inner tube. P. Harder, Copenhagen, Denmark.

1,429,047 Tire valve. M. J. Payne, assignor to The Payne Valve Corporation—both of Staunton, Va.

1,429,209 Combination solid and spring tire. V. Kubelka, Brooklyn, N. Y.

*Under Rule No. 167 of the United States Patent Office, the issue closes weekly on Thursday, and the patents of that issue bear date as of the fourth Tuesday thereafter.

Issued* September 19, 1922

1,429,246 Wringer. B. S. McCutcheon, North Plainfield, N. J.

1,429,266 Disk clutch facing and process of making same. W. Achtmeyer, Middletown, Conn.

1,429,313 Transparent cap for tire stem pressure gages. A. Badowski, assignor to Tirometer Valve Corporation of America—both of Charleston, West Va.

1,429,314 Transparent cap for tire stem pressure gages. A. Badowski, assignor to Tirometer Valve Corporation of America—both of Charleston, W. Va.

1,429,315 Transparent cap for tire stem pressure gages. A. Badowski, assignor to Tirometer Valve Corporation of America—both of Charleston, W. Va.

1,429,318 Clothes wringer. E. F. Beebe, Minneapolis, Minn.

1,429,385 Inner tube for pneumatic tires. N. G. Warth, Columbus, Ohio.

1,429,673 Rubber heel. G. Bormann, Hanover, Germany.

Issued* September 26, 1922

1,430,100 Sectional cushion tire. L. O. Mitchell, Kansas City, Mo.

1,430,191 Teat cup for milking machines. N. D. Rutherford, assignor to United Engine Co.—both of Lansing, Mich.

1,430,194 Inflatable diving dress. M. C. Schweinert, New York, N. Y. (Renewed February 27, 1922.)

1,430,230 Buffer and other springs constructed of india rubber. C. W. C. Hine, Dorking, England. (Granted under the provisions of the act of March 3, 1921, 41 Statute Law, 1313.)

1,430,236 Pneumatic tire. J. G. Aulsebrook, Kitchen, Lancaster, England. (Granted under the provisions of the act of March 3, 1921, 41 Statute Law, 1313.)

1,430,393 Dirigible. C. J. Lynde, Ste. Anne de Bellevue, Quebec, Canada.

1,430,436 Combination tire. M. S. Corbett, Glassboro, N. J.

The Dominion of Canada

Granted September 5, 1922

223,292 Blowout patch. R. W. Evans, Hamilton, Ontario.

223,337 Cushioned solid tire. J. F. Sipe, New York City, U. S. A.

223,341 Means for administering anesthetics. S. O. Spinola, Vancouver, British Columbia.

223,354 Golf ball. J. White, Summingdale, Berks, England.

223,393 Slotted rubber storage battery separator. The Philadelphia Storage Battery Co., assignee of W. E. Holland and J. M. Skinner—all of Philadelphia, Pa., U. S. A.

223,394 Storage battery with rubber separators. The Philadelphia Storage Battery Co., assignee of W. E. Holland—both of Philadelphia, and I. J. Pearson, Wyncote—both in Pa., U. S. A.

223,395 Battery cell construction. The Philadelphia Storage Battery Co., assignee of W. E. Holland—both of Philadelphia, Pa., U. S. A.

223,396 Storage battery. The Philadelphia Storage Battery Co., assignee of W. E. Holland—both of Philadelphia, Pa., and R. L. Heberling, Chicago, Ill.—both in the U. S. A.

223,407 Multiple conductor electrical cable. The Standard Underground Cable Co. of Canada, Limited, Hamilton, Ontario, assignee of M. W. Davis, Edgeworth, and P. H. W. Smith, Sewickley—both in Pa., U. S. A., executors of the estate of C. W. Davis, deceased.

223,408 Multiple conductor electrical cable. The Standard Underground Cable Co. of Canada, Limited, Hamilton, Ontario, assignee of M. W. Davis, Edgeworth, and P. H. W. Smith, Sewickley—both in Pa., U. S. A., executors of the estate of C. W. Davis, deceased.

223,434 Rubber hand grip for files. J. L. Osgood, Buffalo, N. Y., U. S. A.

Granted September 12, 1922

223,580 Cushion wheel. E. A. Larsen Larkspur, Calif., U. S. A.

223,608 Necktie with elastic neck section. J. McK. Dunsmore and J. Wiebe, coinventors—both of Vermilion, Alberta.

Granted September 19, 1922

223,684 Dust cap for tire valve. A. E. Bronson, Cleveland, Ohio, U. S. A.

223,685 Dust cap for tire valve. A. E. Bronson, Cleveland, Ohio, U. S. A.

223,686 Tire valve inside. A. E. Bronson, Cleveland, Ohio, U. S. A.

223,703 Windshield cleaner, motor operated. J. Demand, New York City, U. S. A.

223,771 Parachute. J. R. Navarre, Charleston, W. Va., U. S. A.

223,829 Parachute. The E. R. Calthrop's Aerial Patents, Ltd., assignee of E. Calthrop, both of London, Middlesex, England.

223,836 Captive ball practice device. The Craig Golfmeter Co., Wilmington, Del., assignee of C. F. Craig, San Francisco, Calif.—both in U. S. A.

223,850 Reinforced pneumatic tire. The Fisk Rubber Co., Chicopee Falls, assignee of B. C. Dowse, Kenilworth, Ill., and of The Federal Rubber Co.—all in U. S. A.

223,912 Rubber heel. C. T. Maddock and H. W. Doncaster, assignee of ½ interest, both of Elyria, Ohio, U. S. A.

Granted September 26, 1922

224,117 Inner tube. Paramount Rubber Consolidated, Inc., Philadelphia, assignee of W. E. Roberts, Andover, Mass.—both in U. S. A.

Chemical Patents will be found on pages 87-88; Machinery and Process Patents on pages 90-92

The United Kingdom

Published August 30, 1922

182,509 V-shaped fan belt. T. G. P. Healey, 191 Boldmere Road, Wylde Green, near Birmingham.

182,549 Rubber heel and sole pads. J. S. Clarke, Dartmouth House, Byfleet, Surrey, and Woodmilne, Limited, 2 Central Buildings, Westminster.

182,560 Elastic fabric containing special materials. J. S. Withers, 52 Chancery Lane, London; Soc. du Caoutchouc Manufacture, 86 Rue Notre Dame de Nazareth, Paris, France.

182,585 Revoluble heel. T. Binnie, 41 Regent street, Portobello, Edinburgh, Scotland.

182,620 Reservoir pen. E. E. S. Wade, 65 Cavendish Drive, Rock Ferry, Cheshire.

182,624 Shaving soap cover of rubber. J. Birch, Woodside, Holywood, Co. Down.

182,640 India rubber paving. H. Hawthorn, 16 Upper Gloucester Place, and H. A. Huntley, 28 Bridge Row, Cannon street—both in London.

182,666 Golf ball with sponge rubber core, etc. W. G. Morris, 74 Merton Road, Wimbledon, London.

182,692 Reservoir pen. W. Shotton, 47 Stonehill street, Anfield, and J. A. Clough, 181 Lisburn Lane, Old Swan—both in Liverpool.

182,714 Rubber sponge container. G. Fierheller, 535 Sherbourne street, Toronto, Canada.

182,760 Partitioned inner tube with supplementary emergency air chamber. J. Polak, Bussum, Holland. (Not yet accepted.)

182,798 Inflating valve for pneumatic tires, footballs, etc. P. Tura, Caravaggio, Lombardy, Italy. (Not yet accepted.)

Published September 6, 1922

182,837 Rubber stuffed mattresses or cushions with inflatable supporting tubes. Plantation Rubber Manufacturing Co., Limited, and M. M. Dessau, 14 Mincing Lane, London.

183,054 Stocking protector with elastic in top and rubber in heel. Y. Igaki, 75 Clarendon Road, Holland Park, London.

183,086 Corset with elastic strips. D. Kops, 120 East 16th street, New York, N. Y., U. S. A.

183,088 Tire and inner tube stuffed with sponge rubber. J. W. Binks, 7 Market Square, Seghill, Northumberland.

183,098 Rubber and metal driving belt. A. R. Kearney, 6 Templars avenue, Golders Green, and C. W. Taylor, 142 Albany street, both in London, and T. G. Leith, Petmathen, Oyne, Aberdeenshire.

183,099 Rubber and metal driving belt. A. R. Kearney, 6 Templars avenue, Golders Green, and C. W. Taylor, 142 Albany street—both in London, and T. G. Leith, Petmathen, Oyne, Aberdeenshire.

Published September 13, 1922

183,146 Golf practicing appliance. F. G. Williams, 542 Streatham High Road, London, and L. Whitworth, 6 Little Park Gardens, Enfield, Middlesex.

183,149 Rubber mud guard rotating with wheel. M. L. Williams, 68 Benedict street, Bootle, Liverpool.

183,174 Cushion tire. E. J. Taylor, 838 Penobscot Building, Detroit, Mich., U. S. A.

183,320 Clips of elastic, rubber, etc. I. Kaufman, 152 Mill Lane, West Hampstead, London.

183,353 Brassière. G. N. Law, 3 Hyde Park Gate, London.

183,365 Sectional mold for pneumatic tubes. W. L. Fairchild, Times Building, New York, N. Y., U. S. A.

Published September 20, 1922

183,641 Rubber heel. Dunlop Rubber Co., Limited, and H. K. Turner, 1 Albany street, Regent's Park, London.

183,665 Valves. M. C. Schweinert, 42 Riverside Drive, New York, N. Y., and H. P. Kraft, 219 Godwin avenue, Ridgewood, N. J.—both in the U. S. A.

183,709 All-rubber braces or suspenders. A. Roberts & Sons, Limited, Deykin's avenue, Witton, Birmingham; M. B. O'Connor, Ballygunge, Circular Road, Calcutta.

183,751 Pneumatic wheel, single or twin. H. de Hooydonck, Avenue Edouard VII, Biarritz, Basses-Pyrénées, France.

183,754 Gas mask. T. W. Rogers, 33 Chancery Lane, London; W. Kops, 120 East 16th street, New York, N. Y., U. S. A.

183,755 Gas mask. W. Kops, 120 East 16th street, New York, N. Y., U. S. A.

183,765 Combined solid and spring tire. J. T. Jones, The Firs, Castle Hill, Maidenhead, Berkshire.

183,766 Golf practicing device. W. B. Lake, Mount Place, Braintree, Essex.

183,829 Tire interliner of rubber and wire. S. P. A. Rasmussen, 3 Mindegade, Aarhus, Denmark. (Not yet acepted.)

Published September 27, 1922

183,880 Indoor game using rubber ball. F. M. Burrell, Chatkyll Cottage, Laurie Park Crescent, Sydenham, London.

183,929 Rubber heel sectionally divided by cross-cuts for ease in replacing worn sections. L. Metcalfe, 79 Beech Hall Road, Highams Park, Essex.

183,942 Pneumatic tire casing. W. Carpmael, 24 Southampton Buildings, Holborn, London; Michelin & Cie., Clermont-Ferrand, France.

183,944 Photographic squeegee. A. P. Keen and W. Smith, 260 Foleshill Road, Coventry.

184,009 Resilient footrest for motorcycles, etc. A. Turner, 35 Grange Lane, Leicester.

184,016 Electric cables. J. Urmston and Callender's Cable & Construction Co., Ltd., Hamilton House, Victoria Embankment, Westminster.

184,105 Infants' rubber pants. A. E. White, 88 Chancery Lane, London; I. B. Kleinert Rubber Co., 725 Broadway, New York City, U. S. A.

Germany

Patents Issued, with Dates of Issue

361,483 (July 30, 1919) Solid tire. Gummiwarenfabrik S. Herz, G. m. b. H., Berlin.

361,484 (December 8, 1921) Solid tire. Valentin Martin Cabretosa, Barcelona, Spain; represented by S. Meier, Berlin S. W. 61.

361,485 (March 15, 1921) Solid tire. William Beach Pratt, Wellesley, Mass., U. S. A.; represented by G. Benjamin and H. F. Wertheimer, Berlin S. W. 11.

361,786 (May 1, 1920) Syringe. Franz Doll, Albertstrasse 38, Freiburg-im-Breisgau.

361,787 (September 3, 1921) Syringe. Wilhelm Haselmeier, Vaihingen a. F.

361,788 (December 13, 1919) Ampulla of angular form with injection tube. Dr. Julius Frankenstein, Kaiser-Wilhelmplatz 5, Berlin-Schöneberg.

361,793 (February 13, 1920) Catheter. Wilhelm Rothenburger, Mozartstrasse 13, Münich.

362,112 (October 8, 1920) Tread. Max Hohnekamp, Langensalzaerstrasse 21, and Georg Romhild, Jacobstrasse, Eisenach.

362,208 (June 25, 1921) Rubber tread patch with metal plate embedded therein. Hermann Peuke, Brackel, near Dortmund.

Design Patents Issued, with Dates of Issue

820,640 (May 17, 1922) Rubber band for all kinds of bicycle felloes. Krapf & Hofer, Frankfort-on-the-Main.

820,883 (June 19, 1922) Sponge rubber toy. Bruno Lindemann & Co., Hamburg.

820,977 (June 22, 1922) Tread for tires of bicycles and the like. Gummiwerke Neckar A.-G., Friedrichsfeld in B.

821,007 (June 21, 1921) Rubber bodies particularly hollow bodies with patterns. Vereinigte Gummiwaren-Fabriken Harburg-Wien, formerly Menier J. N. Reithoffer, Harburg-on-the-Elbe.

821,064 (June 16, 1922) Inlay for hat brims. Vereinigte Gummiwaren-Fabriken Harburg-Wien, formerly Menier J. N. Reithoffer, Harburg-on-the-Elbe.

821,118 (May 22, 1922) Football game. Kurt Colditz, Johannis-Allee 9, Leipzig-Reudnitz.

821,152 (June 17, 1922) Rubber pouch with colored pattern. Continental Caoutchouc-und-Gutta-Percha-Compagnie, Hanover.

821,201 (January 31, 1920) Vehicle wheel. The Dunlop Rubber Co., Limited, London; represented by R. H. Korn, Berlin S. W. 11.

821,262 (June 23, 1922) Rubber sole with braided wire insert. Wilhelm Steinmetz, Hohenlimburg.

821,263 (June 23, 1922) Rubber heel with braided wire insert. Wilhelm Steinmetz, Hohenlimburg.

821,308 (December 28, 1920) Elastic webbing. Société Queron & Courbon, St. Etienne, Loire, France; represented by J. Tenenbaum and Dr. H. Heimann, Berlin S. W. 68.

821,310 (March 9, 1921) Exchangeable tread patch for heels. Fuga G. m. b. H., Hanover.

821,353 (May 24, 1922) Rubber heel with metal insert in the form of a horse-shoe. Philipp Kulzer, Buerschestrasse 61, Osnabrück.

821,362 (June 10, 1922) Rubber garment protector. Para-Gummiwerke, G. m. b. H., Köln-Deutz.

821,425 (June 26, 1922) Closing tube of soft rubber, without folds, for anti-smoke helmets. Degufrah Deutsche Gummiwarenfabrik. Franz Au & von der Halben, Berlin-Weisensee.

821,468 (June 28, 1922) Inflatable toy boat of rubber. Fritz Thiele, Springerstrasse 9, Leipzig.

821,571 (March 8, 1922) Delousing apparatus. Continental-Caoutchouc-und-Gutta-Percha-Compagnie, Hanover.

821,623 (January 11, 1922) Double rupture band. Georg Haertel Korn-Ges., Berlin.

821,631 (March 7, 1922) Sanitary band. Franz Fischer, Steingrund, Post Kisslingswalde.

821,704 (June 30, 1922) Revolving and exchangeable rubber heel. Erich Klinkmüller, Staaken.

821,757 (June 17, 1922) Inflatable rubber toy figure with valve closing. Max Manfred von der Heyden, Leipzigerstrasse 119-120, Berlin.

822,014 (December 7, 1921) Exchangeable rubber heel. Bruno Grohmann, Kronprinzenplatz 7, Dresden-Löbtau.

822,175 (April 12, 1922) Rubber heel. Oskar Freytag, Matthias Wojak and Alfons Cerecki, Bottrop.

822,188 (May 31, 1922) Uterine pessary. Gustav Herter, Möhringerstrasse 14, Stuttgart.

822,361 (July 13, 1922) Rubber heel. Etablissements Hutchinson, Gummiwarenfabrik, Mannheim.

822,373 (January 3, 1921) Demountable felloe for rubber tires. August Wittig, Klosterstrasse 45, Düsseldorf.

822,436 (July 15, 1922) Rubber heel. Walter William Phillips, London; represented by Dr. R. Geissler, Berlin S. W. 11.

822,468 (May 29, 1922) Piston packing. Heinrich Schmidt, Rödigerstrasse 83, Barmen.

822,556 (June 30, 1922) Syringe. Hermann Aberle, Wildbad, Württemberg.

822,968 (July 15, 1922) Rubber band holder, especially for cigar or cigarette cases. Firma Anton Enghofer, Pforzheim.

823,042 (July 1, 1922) Transparent, squirted, seamless pure rubber tube. Gummiwarenfabrik Carl Plaat.

823,043 (July 1, 1922) Transparent, seamless nipple. Gummiwarenfabrik Carl Plaat, Köln-Nippes.

823,250 (June 13, 1922) Injection syringe. Oskar Pokorny, Vienna; represented by G. Dedreux and A. Weickmann, Münich.

823,547 (July 15, 1922) Rubber sole with leather tip. Christoph Hansen, Norderhofenden 10, Flensburg.

823,838 (July 12, 1922) Exchangeable heel of rubber and iron. Ewald Lenz, Lüttringhausen, Rheinland.

823,928 (May 13, 1921) Tube with wire inlay, especially for breathing apparatus. Hanseatische Apparatebau-Ges., formerly L. von Bremen & Co. m. b. H., Kiel.

823,929 (May 14, 1921) Packing ring with metal insert. Firma Friedrich Goetze, Burscheid, near Cologne.

824,030 (June 6, 1922) Sanitary binder. Rosa Kunze, née Kessler, and Lina Muth, Schützenstrasse 41, Berlin-Steglitz.

824,081 (June 18, 1920) Metal band for solid tire. The Dunlop Rubber Co., Limited, London; represented by R. H. Korn, Berlin S. W. 61.

824,105 (June 23, 1922) Inhaler. Max Lehmann, Hardenbergstrasse 47, Leipzig.

824,114 (June 29, 1922) Carrying ring for solid tires. Auto-Räder- und Felgenfabrik Max Hering, Ronneburg, S.-A.

824,115 (June 29, 1922) Carrying ring for solid tires. Auto-Räder- und Felgenfabrik Max Hering, Ronneburg, S.-A.

824,116 (June 29, 1922) Carrying ring for solid tires. Auto-Räder- und Felgenfabrik Max Hering, Ronneburg, S.-A.

824,242 (May 13, 1922) Rubber tube for tires. Harry Cohen, Koblenz-Pfaffendorf.

824,266 (July 1, 1922) Protective tire for pneumatics. Maurice Besson and Ferdinand Nouzarède, Bordeaux; represented by Charlotte Förster, Osnabrückerstrasse 1, Charlottenburg.

824,412 (July 1, 1922) Rubber sucker for artificial teeth. Hans Pfeuffer, Heidingsfeld.

824,451 (July 5, 1922) Air tube for tires, composed of cells. Alfred Müller, Grunewalderstrasse 23, Berlin-Schöneberg, and Josef Hanfthaler, Steinmetzstrasse 26A, Berlin.

824,700 (June 27, 1922) Bicycle tire protector of rubber with fabric inserts on both sides. Gottfried Steven, Gustav-Freytagstrasse 19, Dresden-Blasewitz.

824,709 (July 13, 1922) Nail catcher for rubber tires. Paul Winkler, Reifenbergerstrasse 44, Frankfort-on-the-Main—Rödelheim.

824,737 (August 14, 1922) Nail catcher for pneumatic tires. Albert Obermann, Zorge.

824,838 (August 7, 1922) Self-acting closing for tubes for pneumatic tires for all vehicles. Gottfried Steven, Gustav-Freytagstrasse 19, Dresden-Blasewitz.

825,203 (July 3, 1922) Inhaling apparatus. Maria Rüschkamp, née Moos, Karolingerring 4, Cologne.

825,410 (July 21, 1922) Rubber mat for operation chairs. Gartner & Co., Komm.-Ges., Dortmund.

825,423 (August 15, 1922) Bill fold of rubberized material without seam. Leipziger Gummi-Waren-Fabrik A.-G., formerly Julius Marx, Heine & Co., Leipzig.

825,753 (June 28, 1922) Pessary. Leonhard Rossmaier, Annaplatz 10, Munich.

825,766 (July 28, 1922) Pessary. Elfriede Weiland, née Ruhland, Geibelstrasse 34, Hanover.

825,769 (July 31, 1922) Sanitary belt. Gummiwaren-Fabrik M. Steinberg, Kola-Lindenthal.

825,783 (August 28, 1922) Pessary. Dr. Carl Heinrich Kaeser, Nymphenburgerstrasse 196, Munich.

Trade Marks

The United States

Two Kinds of Trade Marks Now Being Registered

Under the rules of the United States Patent Office, trade marks registered under the Act of February 20, 1905, are, in general, fanciful and arbitrary marks, while those registered under the Act of March 19, 1920, Section 1 (b), are non-technical, that is, marks consisting of descriptive or geographical matter or mere surnames. To be registered under the latter act, trade marks must have been used for not less than one year. Marks registered under this act are being published for the first time when registered, any opposition taking the form of an application for cancellation.

Granted September 5, 1922, Act of February 20, 1905

158,415 OH BOY and representation of a bulldog with the Capitol in the background—toy balloons, barking and sounding toys, etc. H. R. Colwell, Washington, D. C.

158,446 SEAL PACK THE END OF TIRE TROUBLE—puncture-healing composition for pneumatic tires. A. Grant, Edmonton, Alta, Can.

158,458 BLUE DART—golf balls. Holmac, Inc., New York, N. Y.

158,480 LOCKATOMIK—corsets, hose supporters, abdominal belts, brassieres, etc. A. H. Lockwood, Hartford, Conn.

158,499 HYPO-UNITS—syringes. H. K. Mulford Co., Philadelphia, Pa.

158,501 MASTER—rubber soles and heels. The Manhattan Rubber Mfg. Co., Passaic, N. J.

158,502 MORESHU—rubber-soled shoes. Walter H. More Co., Inc., New York, N. Y.

158,546 I. C. W. HELIONICE, MARQUE DÉPOSÉE, arranged on conventionalized sunburst with superimposed rectangle bearing the word HELIONICE—chemicals and paints, including lithopone. Ste. Ame. des Industries Chimiques Wilsele, Wilsele-lez-Louvain, Belgium.

Renewals

22,224 COLUMBIA—wringers. Registered December 20, 1892. The American Wringer Co., Providence, R. I., and New York and Auburn, N. Y. Renewed December 20, 1922.

22,225 DAISY—wringers. Registered December 20, 1892. The American Wringer Co., Providence, R. I., and New York and Auburn, N. Y. Renewed December 20, 1922.

22,226 HOUSEHOLD—wringers. Registered December 20, 1892. The American Wringer Co., Providence, R. I., and New York and Auburn, N. Y. Renewed December 20, 1922.

Granted September 12, 1922, Act of February 20, 1905

158,647 THE SPINK—golf balls. The Dayton Co., Minneapolis, Minn.

158,653 CHECKER—bouncing balls. The Eagle Rubber Co., Ashland, O., and New York, N. Y.

158,681 ANTI-PUNCTURE and representation of three tires with nails sticking out of them—tire-sealing compound. A. E. Gaylord, New York, N. Y.

158,730 LADY JANE and representation of child dressed in woman's hat, dress, and handbag—children's shoes of rubber and other materials. F. Levy Shoe Co., St. Louis, Mo.

158,731 LEVY & WEISS SHOE CO. arranged around the inner part of a circle and in turn surrounding the words THE RIGHT IDEA HOUSE and TRADE MARK, the letter I being represented by the drawing of an eye surrounded by the rays of a sunburst—shoes of rubber and other materials. Levy & Weiss Shoe Co., St. Louis, Mo.

158,761 NBBC arranged as monogram in center of representation of a button above an ornamental base bearing the words NON-BREAKABLE BUTTON CORP.—nonbreakable rubber buttons. Non-Breakable Button Corporation of America, Milwaukee, Wis.

158,768 TENTO—shoes of leather, rubber, and fabric, and combinations. G. E. Peirce, doing business as Thomas F. Peirce & Son, Providence, R. I.

158,774 EASY FOOT—boots, shoes, and slippers of leather, rubber, etc. Thomas G. Plant Co., Boston, Mass.

158,795 "GUMBO"—waterproof aprons. Rubberized Sheeting & Specialty Co., Inc., New York, N. Y.

158,796 "VACUBAND"—sanitary belts. Rubberized Sheeting & Specialty Inc., New York, N. Y.

158,800 HOPPER on representation of a signboard surrounded by a group of toads—boots and shoes of leather, rubber, fabric, and combinations. P. A. Savi, Boston, Mass.

158,814 LYNN MAID and representation of a young woman in old-fashioned costume—rubbers. Smith Shoe Co., Inc., Lynn, Mass.

158,860 SAVE-STOK—garters. R. M. Whitman, New Bedford, Mass.

Renewals

22,108 PYRAMID—articles of vulcanized rubber, including mats and matting. Registered December 6, 1892. New York Belting and Packing Co., Ltd., New York, N. Y.; New York Belting & Packing Co., a New York Corporation, assignee. Renewed December 6, 1922.

Granted September 19, 1922, Act of February 20, 1905

158,953 STAR—electric massage devices, violet-ray apparatus, etc. The Fitzgerald Mfg. Co., Torrington, Conn.

158,964 RACER—tennis shoes. I. Goldberg & Sons, Boston, Mass.

158,989 TWO IN ONE and REVERSIBLE on the palm and thumb, respectively, of the representation of a glove—rubber gloves. Improved Reversible Glove Co., Inc., New York, N. Y.

159,012 LACROSSE RUBBER MILLS CO., LACROSSE, WIS., between two concentric circles, the inner one containing a star—rubber boots and shoes. La Crosse Rubber Mills Co., La Crosse, Wis.

159,017 ADAPTO—shoes of leather, rubber, fabric, and combinations. Louis A. Leopold, trading as Lane Bryant, New York, N. Y.

159,083 SANTALUCIA above a diamond containing the words EVER-WEAR HEEL—S. Santalucia, Waterbury, Conn.

159,101 PARADISE FRUIT—chewing gum. Short & Son Co., Reading, Pa.

159,120 HICKORY—elastic webbing and shirred elastic ribbon. A. Stein & Co., Chicago, Ill.

159,121 HICKORY—sanitary aprons and belts. A. Stein & Co., Chicago, Ill.

159,153 BUOYANT—rubber heels. L. G. White Shoe Co., Bridgewater, Mass.

Act of March 19, 1920, Section 1 (b)

159,163 ARMSTRONG'S—rubber heels. Armstrong Cork Co., Pittsburgh, Pa.

159,169 NO-WET—children's rubber pants. S. Blechman & Sons, Inc., New York, N. Y.

159,178 DILATO—douche syringes. Dilator Syringe Corporation, New York, N. Y.

159,212 TIME SAVER on dial of conventional representation of a clock—compound for patching tubes and rubber goods. P. A. Porteous, Cleveland, O.

159,241 "JUSTRITE"—druggists' sundries. Western Bottle Manufacturing Co., Chicago, Ill.

Granted September 26, 1922, Act of February 20, 1905

150,345 ECHO within an oval—fountain and stylographic pens. Eggens-Hambler Co., Elizabeth, N. J., and New York, N. Y.

159,437 BENCH & BAR—rubber or rubber composition erasers. J. Meyers Stationery & Printing Co., Inc., New York, N. Y.

159,598 PK'S—sugar-coated chewing gum. Wm. Wrigley Jr. Co., Chicago, Ill.

159,599 PK'S combined with Brownie-type figure—sugar-coated chewing gum. Wm. Wrigley Jr. Co., Chicago, Ill.

Act of March 19, 1920, Section 1 (b)

159,611 DUNBAR—inner tubes and cord and fabric tires. The Columbia Tire & Rubber Co., Mansfield, O.

159,612 SUPERIOR—tires, including casing and inner tube. Cord Tire Corporation, Chester, W. Va.

159,618 EDISON—tires. Edison Tire & Rubber Co., Inc., Chicago, Ill.
159,620 DOUBLE MILEAGE—tires. The Gates Rubber Co., Denver, Colo.
159,622 GUM-ZE—gasket-sealing composition. Gum-Ze Manufacturing Co., Los Angeles, Calif.
159,623 HARDWEAR—pneumatic tires. Hardwear Tire Corporation, Rutherford, N. J.
159,647 MINUTE MEND in white letters against a black background within a rectangle—repair kits for inner tubes. Taylor-Williams Co., Columbus, O.

The Dominion of Canada

Registered

31,754 MILADI—silk elastic. The Hamilton Cotton Co., Ltd., Hamilton, Ont.
31,755 STAR-MERCERISED—silk elastic. The Hamilton Cotton Co., Ltd., Hamilton, Ont.
31,856 LEATHEROID—rubber belts. K. & S. Tire & Rubber Goods, Ltd., Toronto, Ont.
31,951 KASUNDA—belting, packing, hose, and buffers. W. H. Robb, Syracuse, New York.
31,952 AQUAROCK—waterproof clothing. J. Weinberg & Sons, Manchester, Eng.
31,953 GOSSAMAC—waterproof clothing. J. Weinberg & Sons, Manchester, Eng.
31,995 Representation of a tire bearing the word Gillette, and a polar bear, the forepart of the body of which extends through the tire, and beneath which are the words, "A BEAR FOR WEAR"—rubber tires, treads, tubes, and repair parts. Gillette Rubber Co., Eau Claire, Wis., U. S. A.
32,000 AUDIOPHONE—radio loud speakers, etc. The Bristol Co., Waterbury, Conn., U. S. A.

The United Kingdom

Published September 6, 1922

426,131 "THERMOTETE"—rubber nipples to be used with vacuum flasks for infants, but sold separately. A. Jerrold-Nathan, 24 New Bridge street, London, E.C.4.

Published September 13, 1922

B412,796 SILVERTON—grain elevator hose, air and vacuum brake hose, armored hose, and block and sheet packing. India Rubber, Gutta Percha & Telegraph Works Co., Ltd., 106 Cannon street, London, E.C.4, and Winchester street, Silvertown, London.
420,710 JACKSON'S IMPERVO on representation of a label bearing figure of a man standing on a pile of tires, together with certain descriptive wording—liquid puncture-sealing compound for inner tubes. E. Jackson, 603 Fletcher Savings & Trust Bldg., Indianapolis, Ind., U. S. A.; address in United Kingdom, care of Abel & Imray, 30 Southampton Buildings, London, W.C.2.
426,186 PNEUMETTE—foot-arch supports, surgical bandages, and trusses. A. Klotz, 76 Lindwurmstrasse, Munich, Germany; address in United Kingdom, care of Hans & Danielsson, 321, St. John street, London, E.C.1.
427,419 GARTLETTE—garters and suspenders. F. M. Murdoch, 57 St. Paul's Square, Birmingham.

Published September 20, 1922

423,843 Foreshortened view of man sitting down, feet extended in front, soles outermost—rubber soles, heels, tips and pads for boots and shoes. Berson-Kautschuk-Gesellschaft mit Beschränkter Haftung, Zieglergasse 6, Vienna VII, Austria; address in United Kingdom, care of G. F. Redfern & Co., 15 South street, Finsbury, London, E.C.2.
424,337 MEENOMAH—rubber catamenial appliances. W. A. Bowen, 22 Charles Road, Small Heath, Birmingham.
B427,306 MERSEY within obliquely placed square—plimsolls. The New Liverpool Rubber Co., Limited, 292 Vauxhall Road, Liverpool.
427,524 SAC.—tires. E. B. Killen, 27 Queen Victoria street, London, E.C.4.
B427,526 Representation of a label having a conventional border bearing the words KATZ BROTHERS, LTD., PENANG, and within the border the figure of a cat—rubber tapping tools, etc. Katz Brothers, Ltd., 49 Lime street, London, E.C.3; Penang and Singapore, Straits Settlements.

Published September 27, 1922

425,664 INCA—all goods included in Class No. 40. Blakeys' Boot Protectors, Ltd., Armley Malleable Ironworks, Modder Place, Armley, Leeds.
427,448 EMPRESS—tobacco pipes and cigarette holders in Class No. 50. Delacour Brothers, Limited, 107 Salusbury Road, West Kilburn, Middlesex.
427,573 Representation of two boys playing leapfrog—goods made from asbestos or in which asbestos predominates, included in Class No. 50, namely, millboard, yarn, rope, cloth, packings, jointings, etc. Sinclair & Quest, 28-30 Lime street, London, E.C. 3.
427,757 STANDEX—all goods included in Class No. 39. Lewis's, Ltd., 40 Ranelagh street, Liverpool; 106-122 Market street, Manchester; and 32 Bull street, Birmingham.
427,758 STANDEX—all goods included in Class No. 40. Lewis's, Ltd., 40 Ranelagh street, Liverpool; 106-122 Market street, Manchester; and 32 Bull street, Birmingham.

New Zealand

Published August 10, 1922

18,304 SPRECKELS-SAVAGE—tires and tubes. The Spreckels Savage Tire Co., 2301 Main street, San Diego, Calif., U. S. A.
18,306 SAVAGE—tires and tubes. The Spreckels Savage Tire Co., 2301 Main street, San Diego, Calif., U. S. A.

Published August 24, 1922

18,934 SANOS—rubber and gutta percha goods not included in other classes than Class No. 40. J. C. Burbery, Hataitai, Wellington, N. Z.
18,936 SANOS—druggists' sundries, and all goods included in Class No. 11. J. C. Burbery, Hataitai, Wellington, N. Z.
18,956 IMPERVIO—waterproofing compound for textile and leather goods. F. G. Blake trading as The Sheffield Manufacturing Co., 93 Lewis street, Invercargill, N. Z.
18,969 MAGNA—rubber plates, pads, and pieces for attachment to the soles or heels or boots and shoes. Phillips' Patents, Ltd., 142-146 Old street, London, E. C. 1, Eng.

Designs

The United States

Issued* September 5, 1922

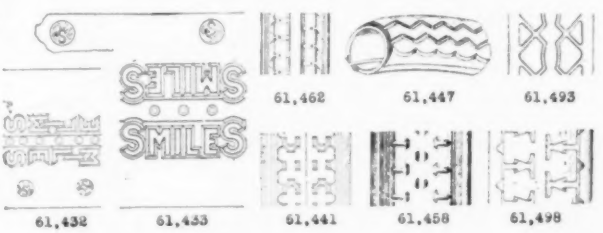
61,432 Tire. Term 14 years. H. J. Andrus, Akron, O.
61,433 Tire. Term 3½ years. H. J. Andrus, Akron, O.
61,441 Tire tread. Term 14 years. E. A. Hecht, Mansfield, O.
61,447 Tire tread. Term 7 years. O. Moynihan, Cleveland, O.
61,453 Rubber sole. Term 14 years. D. M. Todd, assignor to Dryden Rubber Co.—both of Chicago, Ill.
61,454 Rubber heel. Term 14 years. D. M. Todd, assignor to Dryden Rubber Co.—both of Chicago, Ill.
61,458 Tire tread. Term 14 years. P. Worth, Akron, assignor to The India Tire & Rubber Co., Mogadore—both in Ohio.

Issued* September 12, 1922

61,462 Nonskid tire. Term 14 years. J. N. Carter, Trenton, N. J., assignor to Bergougnan Rubber Corporation, Wilmington, Del.
61,473 Rubber sole. Term 14 years. H. T. Mason, assignor to Quabaug Rubber Co.—both of North Brookfield, Mass.
61,474 Rubber heel. Term 14 years. H. T. Mason, assignor to Quabaug Rubber Co.—both of North Brookfield, Mass.
61,488 Rubber heel. Term 14 years. G. W. Watson, Boston, Mass.

Issued* September 19, 1922

61,493 Tire. Term 14 years. W. D. Varnal, Akron, O., assignor to Ray Puncture Proof Tire Co., Chicago, Ill.



61,462 61,447 61,493
61,432 61,453 61,441 61,458 61,498

61,498 Tire. Term 14 years. H. A. Githens, Milwaukee, Wis., assignor by mesne assignments to The Fisk Rubber Co., Chicopee Falls, Mass.

Issued* September 26, 1922

61,519 Rubber heel. Term 14 years. J. C. Krieg and F. Fishbaugh, Newark, O.

*Under Rule No. 167 of the United States Patent Office, the issue closes weekly on Thursday, and the patents of that issue bear date as of the fourth Tuesday thereafter.

The Dominion of Canada

Registered

5,554 Rubber suspender stud or button. R. S. Smart, Ottawa, Ont.
5,555 Football. R. S. Smart, Ottawa, Ont.

THE PURE GUM RUBBER POWDER-PUFF CASE IS THE LATEST novelty in rubber displayed by the Woolworth five-and-ten-cent stores, New York, N. Y.

Stevenson Plan for Rubber Control Adopted

THE Netherlands Government having declined to cooperate in the plan for controlling plantation output of crude rubber proposed by the Colonial Office Rubber Committee last June, a supplementary report was issued under the chairmanship of Sir James Stevenson. The proposals there made have been officially approved and will be submitted to the legislatures of Ceylon, the Federated Malay States, and the Straits Settlements for action relative to the application of the plan in their respective territories. It is anticipated that the plan will be operative November 1.

The action of the committee was guided by consideration of the following facts: (a) Excessive and increasing production of rubber, owing to the failure of the producers to make voluntary restriction effective, with consequent continuation of the depression in the price of rubber. (b) The general demand by the leaders of the rubber industry, both in London and Malaya, for restrictive measures independent of the Netherlands Government attitude. (c) The committee have had before them the latest available estimates as to the world's production and absorption of rubber in 1922, together with figures of existing stocks.

Although the rate of the world's absorption of rubber for 1922 is substantially greater than the committee's previous figure of 300,000 tons, they decided to base their recommendations on that quantity, that they might err on the safe side.

Standard Production

The scheme adopts as the standard production the actual output of each producer during the twelve months—November 1, 1919, to October 31, 1920—amplified in accordance with certain rules appended to the report. In lieu of existing export duties a minimum export duty is to be levied on that percentage of standard production which is allowed to be exported under the scheme at the minimum rate of duty, the committee recommend that this minimum be fixed at the lowest possible rate, not to exceed one penny per pound. If a producer desires to export a quantity greater than that allowed to be exported at the minimum rate of duty, he will be called upon to pay an export duty on his total export during the period of twelve months on the following scale:

	Duty Per Pound Over All, in Pence
Not exceeding 65 per cent of standard production	4
Over 65 per cent, but not exceeding 70 per cent	5
Over 70 per cent, but not exceeding 75 per cent	6
Over 75 per cent, but not exceeding 80 per cent	7
Over 80 per cent, but not exceeding 85 per cent	8
Over 85 per cent, but not exceeding 90 per cent	9
Over 90 per cent, but not exceeding 95 per cent	10
Over 95 per cent, but not exceeding 100 per cent	11
Over 100 per cent	12

At the initiation of the scheme the percentage exportable at the minimum rate is to be 60. When the rubber situation improves so as to justify allowing an increased percentage of standard production to be exported at the minimum rate of duty the minimum will be substituted in its appropriate place in the scale.

Alterations in the percentage of standard production will be governed by the price of standard quality smoked sheet in the London market, and it is proposed that when the average price for such rubber during three consecutive months has been maintained at not less than 15 pence per pound, London landed terms, the percentage of production which may be exported at the minimum duty shall be raised automatically by 5 for the next ensuing quarter. In the event of the average price being maintained at not less than 18 pence per pound, London landed terms, during the whole of three consecutive months, the percentage shall be raised automatically by 10 for the next ensuing quarter.

If 60 per cent of standard production should prove too high, the committee recommends that if during the second quarter after initiation of the scheme, or in any subsequent period of three months, the price of rubber as defined has not averaged at least 15 pence per pound, the standard production that may be exported at the minimum duty shall be reduced to 55 per cent, and so on by reductions of 5 per cent at the end of each three months until that average price is secured. Once the percentage has been lowered it will not be increased except on the basis of a price of 15 pence as aforementioned.

Application of Plan

The application of the plan in their several territories will rest with the local governments concerned. There will, however, be instituted in London an advisory committee for the purpose of coordinating the operation of the plan in Ceylon, Malaya and other territories involved; the committee to consist of official and non-official members whose duty it will be to advise the Secretary of State on all matters connected with the carrying out of the new policy. It is also proposed that the local governments in the planting areas shall set up committees on which there shall be representatives of the industry to deal with cases for special consideration in regard to local application of the scheme.

Appended to the report of the committee is a series of rules for the guidance of committees in the application of the plan of regulation.

British Malaya Rubber Exports

An official cablegram from Singapore states that 45,332,100 pounds (20,238 tons) of rubber were exported from British Malayan ports in the month of September, against 21,316 tons in August, and 21,964 tons in July. Transhipments amounted to 4,141,700 pounds (1,849 tons), and imports from foreign countries amounted to 6,659,700 pounds (2,973 tons).

Plantation Rubber Exports from Malaya

	January 1 to August 31, 1922		January 1 to September 14, 1922 Port		
	Singapore Pounds	Malacca Pounds	Penang Pounds	Swettenham Pounds	Totals Pounds
To United Kingdom	3,154,300	8,096,100	3,209,900	11,207,562	25,667,862
The Continent	16,204,400	1,969,500	3,166,300	588,313	21,928,513
Japan	21,405,500	526,400	100,800	.....	22,032,700
United States	197,208,000	23,816,300	22,766,900	3,934,309	247,725,509
British Possessions	4,099,700	.....	87,600	628,925	4,816,225
Other countries	295,800	.....	3,200	.....	299,000
Totals	242,367,700	34,408,300	29,334,700	16,359,109	322,469,809

Amsterdam Rubber Market

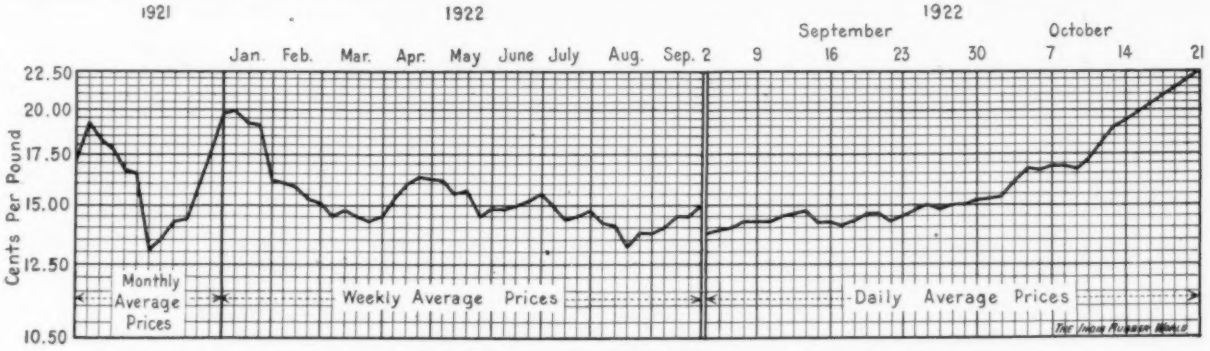
JOOSTEN & JANSSEN, Amsterdam, report under date of October 6, 1922:

The advance continued to proceed without interruption and with increasing activity. Producers took a share in the business as at last somewhat more satisfactory prices could be obtained for parcels on the spot as well as for future deliveries during even the whole of next year. The turnover comprised various qualities spot, c. i. f. and f. o. b. east positions, and in the terminal market practically only deliveries during the current year.

At last sellers predominated and the close is easy at about 1 cent below the highest prices of the week, as follows:

Hevea crêpe, Fl. 45½.	Sheets, Fl. 46 spot.
Hevea crêpe, Fl. 46.	Sheets, Fl. 46½ October to December.
Hevea crêpe, Fl. 47½.	Sheets, Fl. 47½ January to March.
Hevea crêpe, Fl. 48½.	Sheets, Fl. 49 April to June.

A TELEPHONE CABLE, SAID TO BE ONE OF THE LONGEST IN THE world, now connects England with Holland, and was inaugurated for public use on August 15. Approximately eighty nautical miles in length, this cable consists of four cores each of 160 pounds copper per nautical mile, insulated with "modified" gutta percha weighing 150 pounds per nautical mile.



Ratio Graph of New York Market Fluctuations—Average Prices of Ribbed Smoked Sheets

Review of the Crude Rubber Market

New York

THE outstanding feature of the market for crude rubber in the past month was the consistent rise in price on all grades of crude rubber due to acceptance by the British Colonial Office of the recommendations for restriction of plantation rubber production in the British-controlled rubber areas of the Far East embodied in the report of the Colonial Office Rubber Committee, presided over by Sir James Stevenson, which has been considering representations by the Rubber Growers' Association in reference to restriction of output of rubber.

The committee estimates the world's consumption at 300,000 tons annually. Latest figures place the figure for 1923 at 330,000 tons.

Regarding production, a full estimate would be 240,000 tons for 1923, apportioned as follows: British, 151,000; Dutch, 64,000; others, 25,000 tons. The increase or decrease of this quantity by 5 per cent for every rise or fall of 3 pence from the mean of 15 pence is equal to 12,600 tons. A price of 3 shillings will therefore produce 252,000 tons from British-owned plantations.

Taking the present world's stock into consideration, 1923 con-

New York Quotations

Following are the New York spot quotations per pound, for one year, one month ago, and October 25, the current date:

	November 1, 1921	October 2, 1922	October 25, 1922
Plantation Hevea			
CREPE			
First latex	$0.16½@.16¾	$0.15¼@.15¾	$0.22¾@
Off latex	.16 @	.14¾@	.22½@
Amber No. 1	.16 @	.15 @	.22½@
Amber No. 2	.15 @	.14½@	.22¼@
Amber No. 3	.14½@	.14¼@	.22 @
Brown, thick, thin, clean	.15¼@	.14 @	.22 @
Brown, specky	.14½@	.13¼@	.21¾@
Brown, rolled	.13½@	.12½@	.21¼@
SHEET			
Smoked, ribbed	.16¾@	.15¾@.15¾	.22¾@
Smoked, plain	@	@	@
Unsmoked	@	@	@
RUBBER LATEX	@	@ gal. 1.25	@
SCRAP			
Colombo scrap No. 1	.13 @	.12½@	.17 @
Colombo scrap No. 2	.12 @	.10 @.11½	.16 @
East Indian			
PONTIANAK			
Banjermassin	.07 @	.07½@	.08 @
Pressed block	.11½@	.11½@	.13¾@
Sarawak	.06 @	.06¾@	.07¼@
South American			
PARAS			
Upriver fine	.21½@.21¾	.18¾@.19	.24½@
Upriver fine*	@	*.26 @	*.31 @
Upriver medium	.18½@.19½	.17 @.17½	.21½@
Upriver coarse	.12 @	.13¾@	.18 @.18½
Upriver weak, fine	.18 @	.15 @	@
Islands fine	.20 @.21	.16¾@.17	.21 @
Islands fine*	@	*.25 @	*.29 @
Islands medium	.18 @	.15 @.15½	@
Islands coarse	.10 @.11	.09 @.09½	.12½@
Cametá	†.10 @	.09 @.09½	.12½@.13
Cametá*	@	*.18½@	*.21½@
Acre Bolivian fine	.21½@.22	.19 @	.25 @
Acre Bolivian fine*	@	*.26 @	*.31 @
Beni Bolivian	.21½@.22	.19¼@.19½	@
Madeira fine	.23½@.24	.19½@.20	@
Peruvian fine	19 @.20	.17¾@	@
Tapajos fine	.19½@.20	.18 @	.22 @.22½
CAUCHO			
Upper caucho ball	.11¼@	.13½@.13¾	.18 @
Upper caucho ball*	@	*.18½@	*.21½@
Lower caucho ball	.10½@	.11¼@.12	.17 @
Maniçobas			
Ceará negro heads	†.10 @	.08 @	†.15 @
Ceará scrap	†.08 @	.05 @	†.09 @
Maniçoba 30%, guaranty	†.10 @	.07 @	†.06 @
Mangabeira, thin sheet	†.12 @	.12 @	†.15 @
Centrals			
Central scrap	.08 @.11	.10 @.12	.14½@
Central scrap and strip	.07 @.09	.08 @.09	.14 @
Central wet sheet	.04 @	.06 @.08	.04 @.06
Corinto scrap	.08 @.11	.10 @.12	.14½@
Esmeralda sausage	.08 @.11	.10 @.12	.14½@
Guayule washed and dried	.25 @	.26 @	.26 @
Africans			
Benguela, No. 1, 28½%	@	.07 @	@
Benguela, No. 2, 32½%.	.09 @	.05½@	.06 @.07
Congo prime, black upper	@	.08 @	.11 @.13
Congo prime, red upper	@	.11 @	.11 @.13
Kassai, black	@	@	.12 @
red	@	.11 @	.11 @.13
Gutta Percha			
Gutta Siak	.16 @.16½	.15 @	.13¾@
Red Macassar	2.75 @	2.80 @	2.75 @2.80
Balata			
Block, Ciudad Bolivar	.54 @.55	.54½@.55	.59 @
Colombia	.45 @.47	.45 @	.49 @
Panama	.45 @.47	.45 @	.48 @
Surinam sheet	.64 @.66	.67 @.68	.67 @
amber	.69 @.70	.72 @.73	.72 @
Chicle			
Colombia	@	.19 @.25	.19 @.25
Honduras	@	.63 @.64	.63 @.64
Venezuela	@	.65 @	.65 @
Yucatan fine	@	.68 @	.68 @

* Washed and dried crêpe. Shipment from Brazil.
† Nominal.

sumption will be covered without excess. Very much higher prices, therefore, seem to be inevitable and estates will not seek to make forward sales.

Anticipation of this scheme and news of its definite adoption have had a marked stimulating influence on the market. The ranges of prices for ribbed smoked sheets for the weeks ended September 30 and October 7, 14, and 21 were, respectively, 14⅞ to 15⅛; 15¼ to 16⅞; 16¾ to 19¼; and 19⅜ to 22¾ cents.

Parás and all other sorts firmed up in sympathy with plantation. Balatas were very firm and in short supply.

Importations of all grades during September were 28,288 tons compared with 15,088 tons one year ago. Plantation arrivals for September were 27,899 tons compared with 14,653 tons for September one year ago. Total importations of all grades for the nine months ended September 30 were 205,655 tons as compared with 119,466 tons for the corresponding period last year.

Spot and future quotations on standard plantation and Brazilian grades were as follows:

PLANTATIONS. OCTOBER 2. Spot first latex crêpe, 15¼-15⅜ cents; Nov.-Dec., 15½-15⅝ cents; Jan.-Mar., 15¾-16 cents; Apr.-June, 16-16¼ cents. OCTOBER 25. Spot first latex crêpe, 22¾ cents; Nov.-Dec., 22¾ cents; Jan.-Mar., 23½ cents; Apr.-June, 24½ cents.

OCTOBER 2. Spot ribbed smoked sheets, 15¼-15⅜ cents; Nov.-Dec., 15½-15⅝ cents; Jan.-Mar., 15¾-16 cents; Apr.-June, 16-16¼ cents. OCTOBER 25. Spot ribbed smoked sheets, 22¾ cents; Nov.-Dec., 22¾ cents; Jan.-Mar., 23½ cents; Apr.-June, 24½ cents.

OCTOBER 2. Spot, No. 1 amber crêpe, 15 cents; Nov.-Dec., 15¼ cents; Jan.-Mar., 15½ cents. OCTOBER 25. Spot, No. 1 amber crêpe, 22½ cents; Nov.-Dec., 22¾ cents; Jan.-Mar., 23½ cents.

OCTOBER 2. Spot, No. 1 rolled brown crêpe, 12½ cents; Nov.-Dec., 12¾ cents; Jan.-Mar., 13 cents. OCTOBER 25. Spot, No. 1 rolled brown crêpe, 21¼ cents; Nov.-Dec., 21½ cents; Jan.-Mar., 21¾ cents.

SOUTH AMERICAN PARÁS AND CAUCHO. October 2. Spot, upriver fine, 19 cents; islands fine, 16¾ cents; upriver coarse, 13¾ cents; islands coarse, 9 cents; Cametá, 9-10 cents; caucho ball, 13½ cents. OCTOBER 25. Spot, upriver fine, 24½ cents; islands fine, 21 cents; upriver coarse, 18-18½ cents; islands coarse, 12½ cents; Cametá, 12½-13 cents; caucho ball, 17-18 cents.

London

The market has shown a strong advance in realization of the adoption of the plan of restriction of output as laid down by the Stevenson Committee. Spot London prices for ribbed smoked sheets rose steadily during the first three weeks of October from 8¼ to 11¾ pence, inspiring a corresponding rise in the New York market.

Reclaimed Rubber

The steady advance of crude rubber during the past month, due to adoption of a workable plan of production control, has been welcomed by reclaimers as indicating increased demand and better prices for their products. Neither of these results is apparent, as yet, and reclaimers continue to operate their plants on a moderate fractional capacity.

The outlook for reclaimed rubber is taking on a distinctly brighter aspect, much to the encouragement of the trade.

Prices remain nominal as for several months past.

New York Quotations

October 25, 1922

Prices subject to change without notice

STANDARD RECLAIMS

Floating	$0.12 @ $0.13
Friction	.12 @ .13
Mechanical	.08 @ .10
Shoe	.10¼ @ .10¾
Tires, auto	.09 @ .10
truck	.09 @ .10
White	.13 @ .14

Comparative Low and High New York Spot Rubber Prices

	October 1922*	October 1921	October 1920
PLANTATIONS			
First latex crêpe	$0.15¼ @ $0.22¾	$0.15 @ $0.17	$0.21 @ $0.26
Smoked sheet, ribbed	.15¼ @ .22¾	.14¾ @ .17	.20 @ .24
PARAS			
Upriver, fine	.18½ @ .24	.21 @ .23	.23½ @ .26
Upriver, coarse	.13½ @ .19	.11¼ @ .12	.15 @ .16½
Islands, fine	.16¾ @ .22½	.18 @ .21½	.20 @ .24
Islands, coarse	.08½ @ .16½	.08 @ .10¾	.14½ @ .16
Cametá	.09 @ .15	.08½ @ .10½	.14 @ .15½

* Figured to October 25, 1922.

Singapore Rubber Market

GUTHRIE & CO., Limited, Singapore, reports, under date of September 14, 1922:

During the past week the rubber market has been active and advancing, reports from London and New York indicating speculative operations supported by moderate trade buying.

The usual weekly auctions opened yesterday to a steady market, with manufacturing interests in the forefront. Standard grades were not in particular request and were withdrawn for private disposal.

Good F. A. Q. sheet was in strong demand at 24¾ cents, an advance of 2 cents on the week. Off quality sheet realized good prices. Pale crêpes sold up to 25 cents, a few special lots fetching 25¼ cents. Palish crêpes were in particular request round about 24 cents. Lower grades were in steady demand at 2 cents advance. Of 857 tons catalogd 462 tons were sold.

The following is the course of values:

	In Singapore per Pound	Sterling Equivalent per Pound in London
Sheet, fine ribbed smoked	25¼	—/ 8⅝
Sheet, good F. A. Q.	24½ @ 24¾	—/ 7⅞ @ —/ 8⅛
Sheet, off quality	22½ @ 24¼	—/ 7½ @ —/ 7¾
Crêpe, fine pale	25 @ 25¼	—/ 8½ @ —/ 8⅝
Crepe, good pale	24 @ 24¾	—/ 8¼ @ —/ 8⅜
Crêpe, off quality	22¾ @ 23¾	—/ 7⅞ @ —/ 8⅛
Crêpe, fine brown	22¼ @ 23¼	—/ 7⅝ @ —/ 8¼
Crêpe, good brown	19 @ 22	—/ 6⅞ @ —/ 7⅝
Crêpe, dark	16½ @ 20¾	—/ 6⅛ @ —/ 7⅛
Crêpe, bark	17 @ 19	—/ 6¼ @ —/ 6⅞

New York Average Spot Rubber Prices

PRICES IN CENTS PER POUND

September, 1922

PLANTATIONS	4*	5	6	7	8	9	11	12	13	14	15	16	18	19	20	21	22	23	25	26	27	28	29	30
Sheet																								
Ribbed smoked	....	13¾	13¾	14	14¼	14¼	14¼	14½	14⅜	14¾	14⅜	14⅜	14⅜	14⅜	14⅝	14⅝	14⅜	14½	14¾	15	14⅞	15	15	15⅛
Crêpe																								
First latex	....	13¾	13⅞	14	14¼	14¼	14¼	14½	14⅝	14⅜	14½	14⅜	14⅜	14⅜	14⅝	14⅜	14⅜	14⅝	14⅞	15	15	15⅛	15	15⅛
Off latex	....	13½	13⅜	13⅝	13⅜	13⅜	13⅜	14½	14⅜	14½	14½	14	13⅝	14½	14½	14⅜	14¼	14	14½	14⅝	14⅝	14⅜	14¾	14¾
No. 1 blanket	....	13½	13⅜	13½	13⅜	14	14	14⅜	14½	14½	14⅜	14½	14	14⅛	14⅜	14½	14⅜	14¼	14⅜	14⅞	14⅞	14⅞	14⅞	14⅞
No. 2 blanket	....	13¼	13½	13½	13⅜	13⅝	13⅝	14⅛	14¼	14¼	14⅛	14	13½	13⅞	14⅛	14⅛	14½	14⅞	14⅜	14⅜	14⅜	14⅝	14⅝	14⅜
No. 3 blanket	....	13⅛	13⅛	13¼	13¼	13⅜	13½	13⅞	14	14	13⅞	13⅞	13½	13⅜	14	14	13⅞	13⅞	14⅛	14⅜	14⅜	14⅜	14⅜	14⅜
Thin, clean, brown	....	13¼	13½	13	13½	13⅜	13⅜	13⅞	13⅞	13⅞	13⅜	13¾	13½	13⅞	14	14½	14⅜	14⅛	14⅜	14⅜	14⅜	14⅜	14⅜	14½
Specky brown	....	12¾	12⅞	12¾	12⅜	12⅝	12⅞	13	13⅜	13⅝	13	12⅞	12¾	13½	13	13½	13	12⅞	13⅜	13¾	13¾	13⅜	13½	14
Rolled brown	....	11⅛	11⅛	11⅜	11½	11½	11⅜	12	12⅛	12¼	11⅞	11⅞	11⅝	11⅞	12	12¼	12	12	12	12¼	12¾	12¾	12½	12⅝

*Holiday.

Crude Rubber Arrivals at New York as Stated by Ships' Manifests

Parás and Caucho

	Fine	Medium	Coarse	Caucho	Totals Pounds
SEPTEMBER 14. By "Halarius," Montevideo.					
Various	126,284	.....	.....	.....	126,284
SEPTEMBER 19. By "Dominic," Pará and Manáos.					
Paul Bertuch	.....	344	4,085	.....	4,429
General Rubber Co.	.....	.....	.....	.....	‖11,200
Poel & Kelly, Inc.	16,374	.....	.....	2,410	18,784
SEPTEMBER 25. By "Bonheur," Pará.					
Paul Bertuch	.....	11,640	.....	.....	11,640
SEPTEMBER 30. By "Leighton," Pará.					
Paul Bertuch	.....	.....	26,246	.....	26,246
General Rubber Co.	.....	.....	.....	.....	‖33,600
Meyer & Brown, Inc.	.....	.....	19,285	39,758	59,043
Poel & Kelly, Inc.	.....	.....	11,017	.....	11,017
OCTOBER 10. By "Cuthbert," Pará.					
Poel & Kelly, Inc.	51,200	.....	.....	.....	51,200
OCTOBER 13. By "Lassell," Manáos and Pará.					
H. A Astlett & Co.	22,400	4,480	11,200	.....	38,080
Paul Bertuch	52,842	4,870	.....	.....	57,712
General Rubber Co.	80,640	.....	6,720	8,960	96,320
Meyer & Brown, Inc.	‖12,320	.....	42,998	.....	55,318
Poel & Kelly, Inc.	201,900	8,700	25,000	42,200	277,800
OCTOBER 16. By "Pocone," Pará.					
H. A. Astlett & Co.	76,160	.....	.....	.....	76,160
Poel & Kelly, Inc.	4,400	.....	8,376	.....	12,776
Schafer & Meyer	23,520	23,520	28,000	.....	75,040
Schafer & Meyer	.....	.....	§15,680	§300	*‖25,500

Plantations

(Figured at 180 lbs. net to the bale or case.)

	Pounds	Totals
SEPTEMBER 18. By "Noordam," Rotterdam.		
L. Littlejohn & Co., Inc.	33,600	
Various	4,020	37,620
SEPTEMBER 19. By "President Adams," London.		
Meyer & Brown, Inc.	28,000	28,000
SEPTEMBER 23. By "Lapland," Antwerp.		
Various	112,860	112,860
SEPTEMBER 23. By "Vennonia," London.		
Baird Rubber & Trading Co., Inc.	135,000	
L. Littlejohn & Co., Inc.	100,800	
Meyer & Brown, Inc.	112,000	
Various	57,200	405,000
SEPTEMBER 24. "Baltic," Liverpool.		
Various	3,600	3,600
SEPTEMBER 25. By "Empress of Asia," Singapore.		
Fred Stern & Co., Inc.	26,880	**26,880
SEPTEMBER 27. By "President Van Buren," London.		
Various	59,400	59,400
SEPTEMBER 27. By "Maneric," Far East.		
Baird Rubber & Trading Co., Inc.	22,400	
Continental Rubber Co. of New York	112,000	
L. Littlejohn & Co., Inc.	537,600	
Schafer & Meyer	22,400	
Fred Stern & Co., Inc.	22,300	
Charles T. Wilson Co., Inc.	67,200	783,900
SEPTEMBER 28. By "Rangoon Maru," Far East.		
General Rubber Co.	564,480	
L. Littlejohn & Co., Inc.	56,000	
Charles T. Wilson Co., Inc.	11,200	631,680
SEPTEMBER 28. By "Idomeneus," Far East.		
H. A. Astlett & Co.	44,860	
Continental Rubber Co. of New York	22,400	
L. Littlejohn & Co., Inc.	700,080	
Meyer & Brown, Inc.	89,600	
H. Muehlstein & Co., Inc.	15,680	
Poel & Kelly, Inc.	85,200	
Fred Stern & Co., Inc.	67,211	
Charles T. Wilson Co., Inc.	11,200	
Various	549,029	1,585,260
SEPTEMBER 29. By "City of Dunkirk," Far East.		
Hood Rubber Co.	‡173,830	
L. Littlejohn & Co., Inc.	329,280	
Poel & Kelly, Inc.	56,000	
Charles T. Wilson Co., Inc.	207,200	
Various	206,050	972,360
SEPTEMBER 29. By "Cyclops," Far East.		
H. A. Astlett & Co.	392,000	
Baird Rubber & Trading Co., Inc.	145,600	
General Rubber Co.	962,500	
Adolph Hirsch & Co., Inc.	22,400	
Hood Rubber Co.	‡101,100	
J. T. Johnstone & Co., Inc.	88,990	
L. Littlejohn & Co., Inc.	1,480,800	
Meyer & Brown, Inc.	627,432	
H. Muehlstein & Co., Inc.	571,200	
H. Muehlstein & Co., Inc.	‡56,000	
Poel & Kelly, Inc.	226,460	
Schafer & Meyer	13,770	
Fred Stern & Co., Inc.	156,800	
Charles T. Wilson Co., Inc.	756,000	
Various	2,262,028	
Various	‡510,520	8,373,600
SEPTEMBER 30. By "Eumaeus," Far East.		
H. A. Astlett & Co.	280,000	
Continental Rubber Co. of New York	33,600	
General Rubber Co.	524,140	
J. T. Johnstone & Co., Inc.	184,800	
L. Littlejohn & Co., Inc.	2,366,880	
Meyer & Brown, Inc.	145,535	
H. Muehlstein & Co., Inc.	145,600	
Poel & Kelly, Inc.	719,800	
Schafer & Meyer	7,739	
Fred Stern & Co., Inc.	‡56,000	
Fred Stern & Co., Inc.	122,747	
Charles T. Wilson Co., Inc.	268,800	
Various	‡1,489,660	
Various	2,068,619	8,413,920
SEPTEMBER 30. By "Apus," Far East.		
Charles T. Wilson Co., Inc.	†201,600	
Various	†549,526	751,126
OCTOBER 1. By "City of New Castle," Far East.		
L. Littlejohn & Co., Inc.	560,000	
Poel & Kelly, Inc.	137,600	
Fred Stern & Co., Inc.	17,920	
Charles T. Wilson Co., Inc.	89,600	
Various	245,720	1,050,840
OCTOBER 1. By "City of Shanghai," Far East.		
Continental Rubber Co. of New York	11,200	
L. Littlejohn & Co., Inc.	392,000	
Fred Stern & Co., Inc.	22,400	
Charles T. Wilson Co., Inc.	44,800	
Various	612,300	1,082,700
OCTOBER 1. By "West Ivan," Singapore.		
Baird Rubber & Trading Co., Inc.	†56,000	56,000
OCTOBER 4. By "Keelung," Far East.		
H. A. Astlett & Co.	380,800	
Continental Rubber Co. of New York	11,200	
General Rubber Co.	477,120	
Hood Rubber Co.	‡213,300	
J. T. Johnstone & Co., Inc.	184,800	
H. Muehlstein & Co., Inc.	349,440	
Poel & Kelly, Inc.	209,280	
Schafer & Meyer	56,000	
Charles T. Wilson Co., Inc.	268,800	2,150,740
OCTOBER 5. By "Suveric," Colombo.		
Paul Bertuch	22,400	22,400
OCTOBER 9. By "Barbadian," Far East.		
Hood Rubber Co.	‡178,475	
H. Muehlstein & Co., Inc.	56,000	234,475
OCTOBER 10. By "Westerdyk," London.		
L. Littlejohn & Co., Inc.	22,400	22,400
OCTOBER 12. By "Verbania," London.		
General Rubber Co.	757,120	
L. Littlejohn & Co., Inc.	448,000	1,205,120
OCTOBER 12. By "Elveric," Colombo.		
Hood Rubber Co.	‡45,800	45,800
OCTOBER 14. By "Ninian," Far East.		
L. Littlejohn & Co., Inc.	111,636	111,636
OCTOBER 14. By "New Amsterdam," London.		
L. Littlejohn & Co., Inc.	67,200	67,200
OCTOBER 16. By "Clan Ranald," Far East.		
L. Littlejohn & Co., Inc.	11,200	11,200
OCTOBER 16. By "Celtic," London.		
General Rubber Co.	147,840	147,840
OCTOBER 17. By "Jalapa," Far East.		
Continental Rubber Co. of New York	190,400	
General Rubber Co.	887,360	
L. Littlejohn & Co., Inc.	1,433,600	
Fred Stern & Co., Inc.	213,040	
Charles T. Wilson Co., Inc.	140,000	2,864,400
OCTOBER 18. By "Kosmo," Far East.		
Hood Rubber Co.	‡22,400	
J. T. Johnstone & Co., Inc.	36,960	
Charles T. Wilson Co., Inc.	89,600	148,960

Africans

SEPTEMBER 22. By "Scythia," Liverpool.		
Fred Stern & Co., Inc.	11,263	11,263
SEPTEMBER 22. By "Olympic," Liverpool.		
Baird Rubber & Trading Co., Inc.	11,200	11,200

Pontianak

SEPTEMBER 15. By "Bowes Castle," Singapore.		
L. Littlejohn & Co., Inc.	23,000	23,000
SEPTEMBER 28. By "Idomeneus," Batavia.		
Various	72,000	72,000
SEPTEMBER 29. By "Cyclops," Singapore.		
L. Littlejohn & Co., Inc.	22,400	
Various	19,600	42,000
SEPTEMBER 30. By "Eumaeus," Singapore.		
L. Littlejohn & Co., Inc.	3,000	
Various	300	3,300

Gutta Siak

OCTOBER 4. By "Keelung," Singapore.		
L. Littlejohn & Co., Inc.	56,000	56,000

Gutta Percha

SEPTEMBER 28. By "Idomeneus," Batavia.		
Various	27,000	27,000
SEPTEMBER 30. By "Eumaeus," Singapore.		
L. Littlejohn & Co., Inc.	1,000	1,000

Balata

SEPTEMBER 14. By "Garfield," Barcelona.		
Various	1,800	1,800
SEPTEMBER 16. By "William Tupper," French Guiana.		
Middleton & Co., Ltd.	29,742	29,742
SEPTEMBER 29. By "Surinam," Paramaribo.		
Middleton & Co., Ltd.	403	
Various	1,997	2,400
OCTOBER 10. By "Cuthbert," Manáos.		
H. A. Astlett & Co.	22,400	22,400
OCTOBER 14. By "Matura," British Guiana.		
Middleton & Co., Ltd.	10,920	10,920

‖Cametá †Fine and medium. §Washed and dried in Brazil. *Includes 9,520 lbs. of Cametá. **Arrived at Victoria, B. C. ‡Arrived at Boston. †Arrived at San Francisco.

United States Crude and Waste Rubber Imports for 1922 (By Months)

	Plantations	Parás	Africans	Centrals	Guayule	Manicoba and Matto Grosso	Totals 1922	Totals 1921	Balata	Miscellaneous	Waste
January ..... *tons*	20,774	916	161	16	....	....	21,867	14,177	42	126	85
February	27,270	1,347	301	14	....	41	28,973	8,641	28	448	6
March	27,711	451	326	3	154	57	28,702	14,416	17	479	61
April	13,910	462	5	2	65	....	14,444	17,269	8	122	....
May	19,485	1,072	3	....	62	....	20,622	10,732	15	855	117
June	14,851	861	14	3	....	21	15,750	13,477	12	526	23
July	24,563	575	102	2	....	3	25,245	11,692	50	541	45
August	20,462	1,175	119	8	....	....	21,764	13,974	33	640	77
September	27,899	342	47	....	....	....	28,288	15,088	48	60	58
Totals, 9 months, 1922. *tons*	196,925	7,201	1,078	48	281	122	205,655	.....	253	3,800	472
Totals, 9 months, 1921	110,146	8,412	772	75	58	3	....	119,466	335	1,513	1,728

Compiled by The Rubber Association of America, Inc.

Exports of India Rubber Manufactures from the

EXPORTED TO—	Belting	Hose	Packing	Thread	Boots		Shoes		Canvas Shoes with Rubber Soles		Soles and Heels	Leather Cloth or Artificial Leather	Waterproofed and Auto Cloth and Auto Topping
EUROPE	Value	Value	Value	Value	Pairs	Value	Pairs	Value	Pairs	Value	Value	Value	Value
Azores and Madeira Islands	.....	$206	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Austria	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Belgium	$274	927	$171	$2,347	.....	.....	.....	.....	.....	.....	.....	.....	$250
Czechoslovakia	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	$1,425	.....
Denmark	.....	650	158	.....	.....	.....	6,956	$9,035	2,619	$1,897	$820	3,337	1,339
Finland	4,371	.....	128	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
France	9,941	553	758	35,572	18	$46	266	207	.....	.....	.....	50,681	137
Germany	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Greece	.....	106	.....	.....	.....	.....	240	284	.....	.....	.....	.....	.....
Iceland and Faroe Islands	.....	.....	.....	.....	914	2,577	45	109	.....	.....	37	.....	.....
Italy	.....	.....	.....	7,418	2,352	2,802	8,264	6,152	.....	.....	71	582	16,777
Jugoslavia, Albania, etc	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Latvia	.....	.....	.....	.....	.....	.....	25	20	.....	.....	.....	.....	.....
Malta, Gozo, and Cyprus Islands	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Netherlands	3,627	1,187	.....	.....	.....	.....	.....	.....	632	610	.....	707	1,213
Norway	414	16	.....	.....	62	214	17,128	12,143	6,621	3,973	394	2,153	1,586
Portugal	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rumania	.....	191	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	34
Spain	.....	31	.....	.....	92	468	.....	.....	.....	.....	698	7,472	861
Sweden	2,998	1,665	397	.....	88	334	1,631	1,186	.....	.....	510	8,199	.....
Switzerland	39	1,665	397	2,772	.....	.....	3,962	3,182	326	309	.....	513	.....
Turkey in Europe	.....	16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	473
England	4,197	14,498	4,773	50,595	2,339	3,870	10,883	6,510	9,437	7,939	1,921	8,246	16,143
Scotland	279	121	167	.....	.....	.....	132	309	.....	.....	.....	5,522	.....
Ireland	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	21
TOTALS, EUROPE	$26,140	$20,167	$6,552	$98,704	5,865	$10,311	50,332	$39,137	19,635	$14,728	$4,451	$88,837	$38,834
NORTH AMERICA													
Canada—Maritime Provinces	$216	$22	$46	.....	939	$2,793	11	$27	12	$17	.....	$555	$43
Quebec and Ontario	4,965	11,337	4,171	$5,377	238	815	2,047	2,241	102	187	$232	16,519	22,490
Prairie Provinces	323	852	21	116	24	76	48	156	.....	.....	.....	298	1,038
Brit. Columbia and Yukon	907	1,319	464	.....	708	2,768	1,420	2,207	20	29	55	528	192
British Honduras	83	5	.....	.....	.....	.....	271	240	4,752	5,048	79	.....	.....
Costa Rica	318	21	.....	.....	.....	.....	.....	.....	.....	.....	945	.....	.....
Guatemala	.....	66	60	.....	.....	.....	.....	.....	336	362	642	.....	75
Honduras	173	1,036	142	.....	24	95	.....	.....	1,386	1,033	12	432	83
Nicaragua	191	.....	103	.....	.....	.....	.....	.....	385	433	644	.....	.....
Panama	151	151	418	.....	.....	.....	1,008	1,183	2,089	1,406	245	.....	5
Salvador	85	83	78	.....	.....	.....	12	48	.....	.....	1,302	.....	.....
Mexico	16,898	15,238	9,052	108	43	148	208	292	40,291	39,503	18,457	2,741	3,895
Miquelon and St. Pierre Islands	.....	.....	.....	.....	348	1,049	.....	.....	.....	.....	.....	.....	.....
Newfoundland and Labrador	550	190	.....	.....	2,739	5,597	2,840	4,284	610	319	309	18	18
Bermuda	.....	179	25	.....	.....	.....	3	2	532	522	76	45	265
Barbados	.....	.....	.....	.....	.....	.....	.....	.....	408	305	.....	.....	13
Jamaica	.....	883	44	.....	.....	.....	.....	.....	6,093	6,317	612	42	300
Trinidad and Tobago	.....	59	245	.....	.....	.....	.....	.....	1,561	1,219	78	.....	383
Other British West Indies	40	1,840	8	.....	.....	.....	.....	.....	1,624	1,611	.....	.....	.....
Cuba	1,018	6,828	6,570	.....	24	72	1,392	1,048	102,784	70,100	14,552	5,692	3,426
Dominican Republic	553	960	321	.....	.....	.....	.....	.....	1,739	1,542	846	500	534
Dutch West Indies	.....	5	.....	.....	.....	.....	.....	.....	4,271	3,429	58	.....	.....
French West Indies	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	112
Haiti	67	78	.....	.....	.....	.....	.....	.....	480	618	111	.....	12
Virgin Islands of United States	.....	177	.....	.....	.....	.....	.....	.....	67	64	52	.....	.....
TOTALS, NORTH AMERICA	$26,538	$41,329	$21,768	$5,601	5,087	$13,413	9,260	$11,728	169,542	$134,064	$39,307	$27,370	$32,884
SOUTH AMERICA													
Argentina	$1,381	$4,487	$581	.....	.....	.....	68	$226	32,976	$26,311	$4,536	$3,551	$3,282
Bolivia	933	90	.....	.....	100	$725	.....	.....	.....	.....	.....	.....	.....
Brazil	9,119	282	1,105	$199	12	85	.....	.....	141	258	179	1,768	3,029
Chile	1,867	4,104	1,949	.....	.....	.....	.....	.....	304	264	.....	6,244	214
Colombia	1,903	646	286	.....	.....	.....	.....	.....	747	880	1,368	1,143	1,101
Ecuador	.....	857	107	.....	12	26	.....	.....	859	582	696	112	349
British Guiana	.....	.....	.....	.....	.....	.....	.....	.....	2,680	2,501	.....	.....	470
Dutch Guiana	.....	.....	.....	.....	.....	.....	96	60	86	120	.....	.....	.....
Peru	.....	2,631	1,996	.....	.....	.....	.....	.....	.....	.....	.....	1,339	78
Uruguay	375	324	.....	.....	35	215	.....	.....	972	791	1,713	440	698
Venezuela	.....	657	637	.....	.....	.....	.....	.....	.....	.....	730	967	495
TOTALS, SOUTH AMERICA	$15,578	$14,078	$6,661	$199	159	$1,051	164	$286	38,765	$31,707	$9,224	$15,564	$9,716
OCEANIA													
Philippine Islands	$2,453	$4,142	$137	.....	214	$551	.....	.....	56,615	$48,798	$2,309	$845	$3,430
Australia	1,243	3,807	3,617	.....	.....	.....	.....	.....	2,889	3,076	.....	20,952	7,173
British Oceania	.....	.....	.....	.....	.....	.....	.....	.....	564	554	.....	.....	.....
French Oceania	1,800	116	.....	.....	.....	.....	.....	.....	760	913	.....	.....	.....
New Zealand	2,258	1,953	1,865	.....	792	3,033	.....	.....	.....	.....	.....	260	1,360
Other Oceania	.....	.....	.....	.....	.....	.....	96	$120	264	483	.....	.....	.....
TOTALS, OCEANIA	$7,754	$10,018	$5,619	.....	1,006	$3,584	96	$120	61,092	$53,824	$2,309	$22,057	$11,963
ASIA													
Aden	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
British India	$2,483	$212	$1,124	.....	.....	.....	.....	.....	2,727	$4,079	$14	$85	.....
Ceylon	.....	90	.....	.....	.....	.....	.....	.....	60	74	.....	.....	.....
Straits Settlements	.....	.....	.....	.....	.....	.....	.....	.....	123	82	.....	.....	$510
China	.....	827	.....	$400	12	$49	5,984	$5,042	24	38	.....	2,782	1,258
Chosen	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	695	.....
Java and Madura	48	.....	.....	.....	.....	.....	.....	.....	78	75	333	.....	41
Other Dutch East Indies	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Far Eastern Republic	.....	.....	.....	.....	.....	.....	84	146	.....	.....	.....	.....	.....
French Indo-China	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Greece in Asia	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hejaz, Arabia, etc	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hongkong	.....	250	392	.....	.....	.....	.....	.....	.....	.....	.....	1,016	.....
Japan	.....	.....	11,552	706	7,458	19,594	12,701	10,527	24	24	.....	2,976	.....
Palestine and Syria	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kwangtung	.....	.....	.....	.....	.....	.....	.....	.....	240	231	.....	13,490	.....
Russia in Asia	.....	.....	11	.....	3	32	3	23	.....	.....	.....	.....	.....
TOTALS, ASIA	$2,531	$1,379	$13,079	$1,106	7,473	$19,675	18,772	$15,738	3,276	$4,603	$347	$21,044	$1,809

United States by Countries During August, 1922

Waterproofed Clothing Value	Pneumatic Casings: Automobile Number	Pneumatic Casings: Automobile Value	Pneumatic Casings: Others Value	Solid Tires: Automobile Value	Solid Tires: Others Value	Pneumatic Tubes: Automobile Number	Pneumatic Tubes: Automobile Value	Pneumatic Tubes: Others Value	Hard Rubber Goods: Tire Repair Materials Value	Hard Rubber Goods: Druggists' Rubber Sundries Value	Hard Rubber Goods: Battery Jars and Accessories Value	Hard Rubber Goods: Other Electrical Supplies Value	Hard Rubber Goods: Others Value	All Other Rubber Manufactures Value	Totals Value
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	$206
.....	8	$153	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	153
.....	574	7,805	.....	.....	.....	756	$1,175	.....	$341	$1,202	.....	$29	.....	$659	15,180
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,425
$75	2,406	33,283	$509	$6,035	.....	2,438	5,864	$283	1,377	1,000	.....	.....	.....	740	66,402
.....	241	4,941	341	608	.....	134	342	75	.....	.....	.....	.....	.....	.....	10,806
.....	1,991	24,937	39	68	.....	93	375	5	2,819	4,228	$1,779	698	$3,358	2,278	138,479
.....	28	446	.....	.....	.....	3	19	.....	.....	.....	.....	.....	.....	.....	465
.....	767	9,573	30	.....	.....	595	967	6	146	.....	.....	.....	.....	.....	11,112
.....	94	1,445	.....	168	.....	82	161	.....	9	.....	.....	.....	.....	.....	4,506
.....	681	9,064	2,767	.....	.....	1,100	4,292	430	.....	.....	.....	.....	.....	371	50,726
.....	639	9,855	.....	.....	.....	560	1,208	.....	75	.....	.....	.....	.....	.....	11,138
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	20
.....	262	2,961	.....	.....	.....	137	249	.....	.....	.....	.....	.....	.....	134	3,344
.....	734	11,659	944	685	.....	887	2,097	219	262	416	.....	.....	.....	1,595	25,221
.....	1,821	35,790	806	707	.....	1,093	2,411	391	292	200	.....	.....	.....	1,032	62,522
.....	287	3,678	.....	.....	.....	20	38	.....	.....	.....	.....	.....	.....	365	4,081
.....	285	5,572	.....	.....	.....	49	111	.....	.....	.....	.....	.....	.....	.....	5,908
.....	1,996	30,155	.....	16,898	$98	1,062	2,279	.....	2,231	.....	.....	.....	.....	426	61,617
.....	1,967	28,845	1,350	355	.....	2,351	5,498	162	87	1,630	.....	.....	.....	488	174,125
.....	150	1,621	151	.....	.....	100	100	60	.....	271	.....	.....	.....	.....	9,018
.....	273	2,876	.....	.....	.....	77	123	.....	60	.....	.....	.....	.....	.....	3,548
1,729	26,382	299,159	5,589	19,767	.....	25,043	38,713	133	10,926	16,973	6,408	.....	10,888	42,717	451,273
1,388	125	1,339	.....	.....	.....	40	54	.....	.....	.....	.....	.....	.....	515	9,694
.....	361	4,325	.....	.....	758	85	163	.....	.....	.....	.....	.....	782	.....	6,049
$3,192	42,072	$529,482	$12,526	$45,291	$856	36,705	$66,239	$1,764	$18,625	$25,920	$8,187	$727	$15,028	$51,320	$1,127,018
$375	33	$492	$7	.....	$44	48	$144	.....	$281	$310	.....	.....	$15	$1,602	$6,989
339	2,350	33,206	299	$5,541	582	2,515	4,033	$74	5,894	5,018	$5,154	$1,493	7,032	52,832	189,831
371	213	2,214	.....	383	21	379	328	.....	258	1,268	1,633	.....	516	3,571	13,443
226	275	4,024	19	484	.....	191	371	9	102	529	73	92	541	2,617	17,556
.....	2	18	.....	.....	31	8	51	.....	.....	33	.....	.....	.....	12	5,600
.....	57	1,145	.....	.....	.....	32	64	.....	41	214	.....	.....	.....	125	2,873
97	71	1,692	.....	.....	203	67	155	.....	.....	38	2	.....	.....	157	3,549
141	76	2,284	12	1,461	.....	70	266	.....	.....	114	.....	.....	70	100	7,454
4	23	428	.....	.....	44	56	123	.....	.....	149	.....	.....	.....	.....	2,119
539	401	5,983	2	350	141	246	430	28	17	469	.....	.....	69	1,164	12,751
.....	18	273	24	240	86	24	54	3	.....	.....	.....	.....	.....	.....	2,276
2,903	12,806	130,888	1,191	5,453	1,985	16,009	27,380	10	1,406	3,600	.....	626	1,035	16,829	299,638
116	.....	.....	24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,189
5,470	99	2,079	531	111	.....	125	248	3	66	75	.....	.....	128	2,001	21,997
84	.....	.....	.....	.....	.....	.....	.....	.....	.....	50	.....	.....	.....	162	1,410
.....	56	640	.....	.....	.....	15	27	.....	19	12	.....	.....	.....	161	1,177
21	627	8,817	141	2,301	.....	1,164	1,908	41	23	51	.....	.....	.....	715	22,216
200	187	2,462	19	84	.....	181	393	3	55	.....	.....	4	.....	314	5,518
.....	81	1,022	48	50	70	37	77	15	.....	.....	.....	10	.....	80	4,871
4,938	6,030	79,681	249	16,944	925	9,991	16,067	25	1,110	3,563	.....	381	264	10,590	244,043
226	1,270	17,187	377	4,058	366	1,633	2,818	.....	73	188	.....	.....	.....	973	31,522
.....	70	762	5	32	.....	77	128	3	1	.....	.....	.....	.....	.....	4,423
.....	146	1,409	.....	79	.....	156	264	.....	7	.....	.....	.....	10	.....	1,881
30	207	2,272	.....	.....	366	305	513	6	36	21	.....	.....	.....	55	4,185
.....	22	282	.....	.....	.....	18	38	.....	.....	.....	.....	.....	.....	27	640
$16,080	25,120	$299,260	$2,948	$37,571	$4,864	33,347	$55,880	$220	$9,389	$15,702	$6,862	$2,606	$9,680	$94,087	$909,151
$1,055	4,625	$42,006	.....	$1,980	$1,282	7,680	$12,287	.....	$222	$1,743	.....	.....	$50	$3,948	$108,930
.....	72	1,439	.....	184	.....	47	105	.....	.....	.....	.....	.....	.....	.....	3,476
.....	3,796	50,677	.....	4,794	.....	941	1,391	.....	60	699	.....	.....	95	703	74,443
.....	674	9,632	$361	364	1,286	382	995	.....	130	.....	.....	.....	125	1,428	28,963
147	347	7,094	.....	84	.....	435	1,002	.....	251	173	.....	.....	76	666	16,820
.....	151	2,898	.....	.....	.....	164	346	.....	.....	.....	.....	.....	2	.....	5,975
.....	94	870	.....	.....	.....	159	242	$20	.....	.....	.....	.....	.....	22	4,125
106	339	3,403	.....	.....	.....	436	856	.....	.....	.....	.....	.....	.....	.....	4,545
2,181	362	7,169	.....	353	.....	246	449	.....	.....	132	.....	.....	225	209	16,762
82	1,001	13,790	.....	.....	.....	270	429	.....	225	308	.....	.....	162	443	19,995
121	238	4,201	320	.....	25	398	824	30	253	1,281	$18	$50	.....	214	10,823
$3,692	11,699	$143,179	$681	$7,759	$2,593	11,158		$50	$1,141	$4,336	$18	$50	$735	$7,633	$294,857
$10,467	5,349	$63,391	$811	$2,613	$5,465	4,822	$9,872	$862	$133	$1,274	.....	.....	.....	$8,283	$165,836
.....	5,157	55,402	.....	6,154	671	548	995	.....	2,046	2,946	.....	.....	$23	3,377	111,482
.....	32	459	.....	.....	.....	30	60	.....	.....	.....	.....	.....	.....	.....	1,073
.....	11	182	75	64	60	6	17	.....	.....	.....	.....	.....	.....	8	3,235
.....	4,166	59,584	35	6,313	80	2,370	4,137	.....	2,083	2,651	.....	$27	.....	3,404	89,043
30	34	294	62	44	.....	33	58	.....	.....	.....	.....	.....	.....	.....	1,091
$10,497	14,749	$179,312	$983	$15,188	$6,276	7,809	$15,139	$862	$4,262	$6,871	.....	$27	$23	$15,072	$371,760
.....	1	$9	.....	.....	.....	26	$50	.....	.....	.....	.....	.....	.....	.....	$59
.....	747	9,404	$94	$3,086	.....	643	1,585	$225	$31	$367	.....	.....	.....	$36	22,825
.....	194	3,074	.....	.....	.....	37	75	.....	.....	.....	.....	.....	.....	.....	3,313
.....	712	9,118	28	2,212	.....	876	1,676	.....	.....	.....	.....	.....	.....	457	14,083
.....	298	6,034	.....	1,703	.....	353	794	80	80	1,325	.....	$17	.....	496	20,925
.....	338	1,668	.....	.....	.....	602	1,729	.....	.....	.....	.....	.....	.....	.....	4,092
.....	852	11,596	.....	11,070	$648	445	901	331	.....	.....	.....	.....	.....	496	25,539
.....	176	2,094	.....	860	.....	166	409	.....	.....	.....	.....	.....	.....	4	3,367
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	146
.....	80	1,198	.....	.....	.....	60	180	.....	.....	.....	.....	.....	$20	.....	1,398
.....	.....	.....	.....	.....	452	.....	.....	.....	.....	.....	.....	.....	.....	.....	452
.....	146	1,981	.....	.....	.....	254	743	.....	100	.....	.....	.....	.....	.....	2,824
.....	17	205	.....	.....	.....	12	18	.....	325	1,073	.....	794	.....	319	4,392
.....	1,111	16,919	7	1,066	.....	56	84	.....	.....	1,834	$125	2,640	861	3,440	72,355
.....	959	11,740	.....	794	.....	949	1,878	.....	259	.....	.....	.....	.....	.....	14,671
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13,721
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	66
.....	5,631	$75,040	$129	$20,791	$1,100	4,479	$10,122	$636	$795	$4,599	$125	$3,451	$881	$5,248	$204,228

Exports of India Rubber Manufactures from the United

	Belting Value	Hose Value	Packing Value	Thread Value	Boots Pairs	Boots Value	Shoes Pairs	Shoes Value	Canvas Shoes with Rubber Soles Pairs	Canvas Shoes with Rubber Soles Value	Soles and Heels Value	Leather Cloth or Artificial Leather Value	Waterproofed and Auto Cloth and Auto Topping Value
AFRICA													
Belgian Congo	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	$54	.....	.....
British West Africa	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
British South Africa	$26,791	$26,129	$749	$57	126	$487	744	$442	5,097	$4,310	1,058	$1,384	$358
British East Africa	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Canary Islands	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	200	93	.....
Egypt	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Algeria and Tunis	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Liberia	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Morocco	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Portuguese East Africa	.....	69	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Other Portuguese Africa	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Spanish Africa	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS, AFRICA	$26,791	$26,198	$749	$57	126	$487	744	$442	5,097	$4,310	$1,312	$1,477	$358
GRAND TOTALS	$105,332	$113,169	$54,428	$105,667	19,716	$48,521	79,368	$67,451	297,407	$243,236	$56,950	$176,349	$95,564

Compiled by the Bureau of Foreign Commerce, Department of Commerce, Washington, D. C.

Official India Rubber Statistics for the United States

Imports of Crude and Manufactured Rubber

	July, 1921 Pounds	July, 1921 Value	July, 1922 Pounds	July, 1922 Value
UNMANUFACTURED—*free*				
India rubber				
From France	11,356	$2,019	6,036	$1,403
Netherlands	323,106	40,365	923,272	170,934
Portugal	31,717	5,843	.....	.....
United Kingdom	3,347,596	415,510	1,769,259	264,960
Canada	30,624	3,369	8,170	1,193
Central America	11,400	1,164	.....	.....
Mexico	.....	.....	.....	.....
Brazil	1,482,037	116,275	1,469,643	149,404
Peru	78,582	11,318	.....	.....
Other South America	10,270	1,635	87,732	13,038
British East Indies	20,165,924	3,248,028	42,980,916	6,270,988
Dutch East Indies	2,011,670	357,665	8,803,660	1,286,419
Other countries	143,592	11,268	806,070	101,415
Totals	27,647,874	$4,214,459	56,854,758	$8,259,754
Balata	139,508	89,302	128,068	72,306
Jelutong (Pontianak)	4,263	449	43,721	4,710
Gutta percha	114,871	23,419	172,104	37,392
Guayule	.....	.....	.....	.....
Rubber scrap	160,291	4,648	297,241	5,970
Totals, unmanufactured	28,066,807	$4,332,277	57,495,892	$8,380,132
Chicle *dutiable*	636,825	$320,477	184,813	$88,643
MANUFACTURED—*dutiable*				
India rubber and gutta percha	.....	$68,451	.....	$103,365
India rubber substitutes	.....	.....	10	11

Exports of Domestic Merchandise

	July, 1921 Pounds	July, 1921 Value	July, 1922 Pounds	July, 1922 Value
MANUFACTURED				
India rubber				
Reclaimed	56,360	$5,065	81,633	$7,925
Scrap and old	416,818	19,439	403,940	14,691
Footwear				
Boots[1] *pairs*	35,203	80,690	35,897	92,587
Shoes[1] *pairs*	204,802	225,016	57,545	42,102
Canvas shoes with rubber soles[1] *pairs*	.....	.....	260,662	208,164
Druggists' rubber sundries[1]	.....	39,004	61,896	68,600
Hard rubber goods				
Battery jars and accessories[1]	.....	.....	34,502	15,888
Other electrical supplies[1]	.....	.....	23,514	8,241
Other hard rubber goods[1]	.....	.....	34,764	33,222
Tires				
Pneumatic casings				
For automobile[1] *number*	.....	1,046,981	121,318	1,417,507
Other[1]	.....	.....	5,729	23,118
Pneumatic tubes				
For automobiles[1] *number*	.....	104,739	103,772	171,123
Other[1]	.....	.....	3,494	5,456
Solid tires				
For automobiles and motor trucks[1]	.....	66,468	3,425	92,236
Other[1]	.....	.....	70,350	16,802
All other tires[1]	.....	22,238	.....	.....
Tire repair materials[1]	.....	.....	60,600	21,254

[1]Details of exports of domestic merchandise by countries during July, 1922, appeared on pages 58-61 of our October issue.

	July, 1921 Pounds	July, 1921 Value	July, 1922 Pounds	July, 1922 Value
Belting[1]	.....	79,444	247,428	116,588
Hose[1]	.....	125,363	285,948	108,347
Packing[1]	.....	46,689	97,672	39,974
Soles and heels[1]	.....	32,160	167,398	61,768
Thread[1]	.....	.....	64,605	75,514
Other rubber manufactures[1]	.....	352,970	319,085	181,549
Totals, manufactured	.....	$2,246,266	.....	$2,822,656

Exports of Foreign Merchandise

UNMANUFACTURED				
India rubber	827,607	$195,364	666,915	$98,113
Balata	2,200	704	10,459	5,827
Jelutong (Pontianak)	.....	.....	.....	.....
Totals, unmanufactured	829,807	$196,068	677,374	$103,940
MANUFACTURED				
Gutta percha and india rubber	.....	$490	.....	$149
India rubber substitutes	.....	.....	.....	.....
Totals, manufactured	.....	$490	.....	$149

Custom House Statistics

New York

Imports

	August, 1921 Pounds	August, 1921 Value	August, 1922 Pounds	August, 1922 Value
UNMANUFACTURED—*free*				
Crude rubber				
From Belgium	.....	.....	127,059	$13,827
Germany	.....	.....	163,520	32,704
Netherlands	3,137,203	$519,517	1,704,488	325,228
Portugal	42,864	8,672	.....	.....
England	3,316,792	470,964	2,889,288	443,203
Ireland	78,239	15,971	.....	.....
Mexico	.....	.....	23,785	1,427
Brazil	1,339,406	122,834	1,939,818	218,225
Colombia	7,298	2,199	6,166	1,345
Peru	.....	.....	21,815	3,407
China	82,600	9,778	.....	.....
British India	39,200	5,880	99,230	16,890
Ceylon	.....	.....	8,775,306	538,741
Straits Settlements	16,134,887	2,370,114	29,994,791	4,279,720
Java	.....	.....	4,658,274	688,271
British East Indies	3,717,344	495,428	.....	.....
Dutch East Indies	2,175,244	409,817	992,245	946,294
Japan	470,400	65,738	44,800	5,878
Totals	30,541,477	$4,496,912	51,440,585	$7,515,160
Balata	88,171	58,399	209,173	135,965
Jelutong (Pontianak)	324,221	17,061	595,663	38,444
Gutta percha	468,275	70,565	187,448	26,439
Totals	31,422,144	$4,642,937	52,432,869	$7,716,008
Rubber, scrap and reclaimed	113,966	9,528	184,726	6,535
Totals, unmanufactured	31,536,110	$4,652,465	52,617,595	$7,722,543
MANUFACTURED				
Manufactures of rubber and gutta percha *dutiable*	.....	$45,962	.....	$87,425
Rubber substitutes *dutiable*	.....	.....	.....	.....
Chicle *dutiable*	132,213	65,858	365,138	192,714

States by Countries During August, 1922—*Continued*

Waterproofed Clothing Value	Pneumatic Casings: Automobile Number	Pneumatic Casings: Automobile Value	Pneumatic Casings: Others Value	Solid Tires: Automobile Value	Solid Tires: Others Value	Pneumatic Tubes: Automobile Number	Pneumatic Tubes: Automobile Value	Pneumatic Tubes: Others Value	Tire Repair Materials Value	Druggists' Rubber Sundries Value	Hard Rubber Goods: Battery Jars and Accessories Value	Hard Rubber Goods: Other Electrical Supplies Value	Hard Rubber Goods: Others Value	All Other Rubber Manufactures Value	Totals Value
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	$213	.....	.....	.....	$213
.....	331	$6,481	.....	$300	.....	336	$815	$50	.....	.....	.....	.....	.....	.....	7,700
$1,610	3,394	37,857	.....	93	$800	2,448	3,548	93	$2,206	$854	.....	$60	$131	$2,272	111,289
.....	410	4,689	$140	.....	.....	276	596	15	.....	.....	.....	.....	.....	.....	5,440
.....	610	7,625	.....	1,071	.....	331	543	.....	90	.....	.....	.....	.....	4	9,626
.....	331	3,017	.....	.....	.....	396	677	.....	.....	.....	.....	.....	200	22	3,916
.....	272	4,165	.....	.....	.....	125	234	.....	.....	.....	.....	.....	.....	.....	4,399
.....	4	45	.....	.....	.....	4	6	.....	.....	.....	.....	.....	.....	.....	51
.....	4	101	.....	.....	.....	4	9	.....	.....	.....	.....	.....	.....	.....	110
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	69
.....	93	1,103	305	.....	.....	12	12	.....	.....	.....	.....	.....	.....	.....	1,420
.....	115	1,570	242	2,955	.....	39	88	76	.....	.....	.....	.....	.....	.....	4,931
$1,610	5,564	$66,653	$687	$4,419	$800	3,971	$6,528	$234	$2,296	$854	$213	$60	$331	$2,298	$149,164
$35,071	104,835	$1,292,926	$17,954	$131,019	$16,489	97,469	$172,834	$3,766	$36,508	$58,282	$15,405	$6,921	$26,678	$175,658	$3,056,178

Custom House Statistics—*Continued*

Exports

Manufactured	August, 1921 Pounds	August, 1921 Value	August, 1922 Pounds	August, 1922 Value
Rubber, scrap and reclaimed	605,422	$32,336	295,551	$16,784
Automobile and other tires, *number*	.....	835,570	119,184	1,127,964
Inner tubes .....*number*	.....	80,438	77,828	137,117
Tire repair materials	.....	.....	79,677	26,939
Boots and shoes..... *pairs*	152,480	175,135	77,129	82,946
Canvas shoes with rubber soles .....*pairs*	.....	.....	213,730	174,534
Soles and heels	.....	18,385	102,022	44,022
Battery jars and accessories	.....	.....	6,279	2,117
Other electrical supplies	.....	.....	10,962	4,378
Other hard rubber goods	.....	.....	16,846	17,553
Druggists' rubber sundries	.....	37,995	37,919	46,085
Belting, hose and packing	.....	140,506	400,939	174,584
Thread	.....	.....	55,866	71,466
Other rubber manufactures	.....	150,335	135,855	88,267
Totals, manufactured	.....	$1,470,700	.....	$2,014,756

Foreign Exports

Crude rubber	15,316	$2,142	404	$135
Balata	2,240	850	61,337	29,868
Gutta percha	.....	.....	.....	.....
Rubber, scrap and reclaimed	.....	.....	.....	.....
Rubber manufactures	.....	1,214	.....	2,129
Chicle	938	342	.....	.....

Imports of Crude Rubber into the United States by Customs Districts

	August, 1921 Pounds	August, 1921 Value	August, 1922 Pounds	August, 1922 Value
Massachusetts	562,979	$55,007	1,505,953	$181,999
Buffalo	200	57	.....	.....
New York	30,541,477	4,496,912	51,440,585	7,515,160
Maryland	567,631	159,826	629,225	87,491
Los Angeles	754,839	119,270	530,278	68,589
San Francisco	606,578	95,297	33,790	4,710
Washington	22,500	3,825	44,900	6,653
Chicago	.....	.....	1,487	592
Colorado	47,600	7,844	146,057	19,318
Totals	33,103,804	$4,938,038	54,332,275	$7,884,512

Plantation Rubber Exports from Java and Madura*

	July 1921	July 1922	Seven Months Ended July 31 1921	Seven Months Ended July 31 1922
To Netherlands .....*kilos*	225,000	315,000	3,977,000	2,475,000
Great Britain	260,000	250,000	5,647,000	3,313,000
Germany	71,000	227,000	251,000	637,000
France	31,000	19,000	51,000	125,000
Italy	.....	29,000	.....	69,000
United States	693,000	2,196,000	4,106,000	9,783,000
Singapore	120,000	212,000	1,638,000	1,739,000
Japan	8,000	1,000	103,000	70,000
Australia	.....	.....	211,000	93,000
Other countries	.....	.....	.....	11,000
Totals.....*kilos*	1,408,000	3,249,000	15,984,000	18,315,000
Ports of origin:				
Tandjong Priok.....*kilos*	827,000	1,376,000	7,130,000	7,329,000
Samarang	26,000	78,000	300,000	393,000
Soerabaya	510,000	1,501,000	7,131,000	9,288,000

* The June figures are verified.

Rubber Statistics for the Dominion of Canada

Imports of Crude and Manufactured Rubber

	July, 1921 Pounds	July, 1921 Value	July, 1922 Pounds	July, 1922 Value
Unmanufactured—*free*				
Rubber, gutta percha, etc.				
From United Kingdom	40,237	$6,695	268,261	$39,630
United States	881,929	132,140	551,673	87,302
British East Indies				
Ceylon	.....	.....	99,966	16,160
Straits Settlements	114,240	39,576	123,490	23,198
Total	1,036,406	$178,411	1,043,390	$166,290
Rubber, recovered	47,976	8,082	153,899	12,747
Rubber, powdered, and rubber or gutta percha scrap	58,577	7,612	225,276	7,439
Balata	.....	.....	23,261	2,912
Rubber substitutes	3,780	376	12,813	2,175
Totals, unmanufactured	1,146,739	$194,481	1,458,639	$191,563
Partly Manufactured				
Hard rubber sheets and rods	111	79	22,259	8,078
Hard rubber tubes	.....	2,020	.....	1,768
Rubber thread, not covered	4,803	5,912	9,819	10,614
Totals, partly manufactured	4,914	$8,011	32,078	$20,460
Manufactured				
Belting	.....	$15,337	.....	$8,167
Hose	.....	10,792	.....	12,397
Packing	.....	4,271	.....	3,140
Boots and shoes.....*pairs*	.....	3,557	1,453	5,639
Clothing, including waterproofed	.....	13,408	.....	16,333
Gloves	.....	913	.....	529
Hot water bottles	.....	101	.....	5,172
Tires, solid	.....	10,064	.....	16,858
Tires, pneumatic	.....	91,206	.....	100,269
Inner tubes	.....	10,451	.....	12,550
Elastic, round or flat	.....	24,639	.....	36,926
Mats and matting	.....	254	.....	295
Cement	.....	3,026	.....	3,013
Other rubber manufactures	.....	94,117	.....	104,580
Totals, manufactured	.....	$282,136	.....	$325,868
Totals, rubber imports	1,151,653	$484,628	1,490,717	$537,891

Exports of Domestic and Foreign Rubber Goods

	July, 1921 Produce of Canada Value	July, 1921 Reexports of Foreign Goods Value	July, 1922 Produce of Canada Value	July, 1922 Reexports of Foreign Goods Value
Unmanufactured				
Crude and waste rubber	$6,558	$55	$1,896	$1,173
Manufactured				
Belting	$344	.....	$19,849	.....
Canvas shoes with rubber soles	16,312	.....	108,855	.....
Boots and shoes	12,495	.....	34,145	.....
Clothing, including waterproofed	836	.....	371	.....
Hose	7,118	.....	18,971	.....
Tires, casings	.....	.....	291,755	.....
inner tubes	.....	.....	19,786	.....
pneumatic	197,914	.....	.....	.....
solid	6,469	.....	10,987	.....
vehicle	.....	$11,640	.....	$278
Other rubber manufactures	6,454	4,893	15,929	2,167
Totals, manufactured	$247,942	$16,533	$520,648	$2,445
Totals, rubber exports	$254,500	$16,588	$522,544	$3,618

United Kingdom Rubber Statistics

Imports

	August, 1921		August, 1922	
	Pounds	Value	Pounds	Value
UNMANUFACTURED				
Crude rubber				
From—				
Straits Settlements	3,087,600	£128,136	2,274,900	£80,926
Federated Malay States	4,155,600	168,091	5,332,100	236,923
British India	476,100	19,642	315,900	13,379
Ceylon and dependencies	3,021,700	126,669	1,534,900	60,843
Other Dutch Possessions in Indian Seas	1,059,400	45,814	291,000	11,167
Dutch East Indies (except other Dutch Possessions in Indian Seas)	1,344,500	52,182	1,263,200	55,004
Other countries in East Indies and Pacific not elsewhere specified	136,400	5,745	42,400	1,590
Brazil	204,900	6,926	278,200	10,119
Peru	145,700	7,280	.....	.....
South and Central America (except Brazil and Peru)	200	8	186,400	7,930
West Africa				
French West Africa	600	22	.....	.....
Gold Coast	.....	.....	1,800	52
Other parts of West Africa	5,900	198	5,700	191
East Africa, including Madagascar	26,900	478	6,000	200
Other countries	82,900	1,815	12,900	404
Totals	13,748,400	£563,006	11,545,400	£478,728
Waste and reclaimed rubber	8,000	£121	45,600	£979
Gutta percha and balata	104,600	15,237	599,600	60,747
Rubber substitutes	5,400	126	23,300	640
Totals, unmanufactured	13,866,410	£578,490	12,213,900	£541,094
MANUFACTURED				
Boots and shoes, *doz. pairs*	1,412	£3,825	7,067	£10,423
Tires and tubes, *number*	141,268	396,650	343,077	398,942
Other rubber manufactures	.....	54,191	.....	87,279
Totals, Manufactured	.....	£454,666	.....	£496,644
Waterproof clothing, *number*	335	£315	212	£230
Insulated wire	.....	5,007	.....	8,798
Submarine cables	.....	.....	.....	.....

Exports

UNMANUFACTURED				
Waste and reclaimed rubber	236,100	£5,332	318,800	£3,956
Rubber substitutes	29,600	792	187,100	3,711
Totals, unmanufactured	265,700	£6,124	505,900	£7,667
MANUFACTURED				
Boots and shoes, *doz. pairs*	7,478	£13,211	19,119	£33,272
Tires and tubes, *number*	112,858	126,855	217,014	202,231
Other rubber manufactures	.....	153,819	.....	207,969
Totals, manufactured	.....	£293,885	.....	£443,472
Waterproof clothing, *number*	68,287	£107,207	79,501	£107,143
Insulated wire	.....	88,430	.....	69,078
Submarine cables	.....	72,491	.....	46,782

Exports—Colonial and Foreign

	August, 1921		August, 1922	
	Pounds	Value	Pounds	Value
UNMANUFACTURED				
Crude rubber				
To Russia	335,700	£10,745	.....	.....
Sweden, Norway and Denmark	142,100	6,090	39,600	£1,361
Germany	2,464,900	70,196	861,500	31,558
Belgium	204,000	7,356	222,800	7,454
France	2,619,800	97,552	2,090,700	72,679
Spain	30,400	1,202	72,500	2,581
Italy	262,600	8,997	373,400	13,527
Austria	25,700	563	.....	.....
Other European countries	1,151,400	31,536	94,900	3,547
United States	6,087,600	399,402	2,773,300	90,460
Canada	4,900	288	631,300	23,684
Other countries	2,000	70	86,000	4,056
Totals	13,331,300	£633,997	7,246,000	£250,307
Waste and reclaimed rubber	9,500	£9,271	1,100	£127
Gutta percha and balata	75,300	250	31,500	4,504
Rubber substitutes	1,100	66	1,100	30
Totals, unmanufactured	13,417,200	£643,584	7,279,700	£254,868
MANUFACTURED				
Boots and shoes, *doz. pairs*	395	£1,581	345	£686
Tires and tubes, *number*	24,208	24,973	6,564	16,660
Other rubber manufactures	.....	1,718	.....	3,060
Totals, manufactured	.....	£28,272	.....	£20,406
Waterproof clothing, *number*	.....	.....	100	£12
Insulated wire	.....	.....	.....	32
Submarine cables	.....	.....	.....	.....

The Market for Rubber Scrap

New York

Week by week during the past month the outlook for rubber scrap business has reflected in optimism the improved status of the market for crude rubber. Shoes still remain the grade in which the scrap business chiefly centers although the activity is very mild and prices but slightly improved over a month ago. Mixed tubes are confined mostly to small demand from consumers, with inquiry improving. Mixed tires are essentially at a standstill and prices are nominal.

There can be no rail movement from distant points owing to the excessive freight rates on scrap; thus such business as exists is strictly of local character.

Quotations for Carload Lots Delivered

October 25, 1922

Prices subject to change without notice

Boots and Shoes			
Boots and shoes, black	*lb.*	$0.02⅞@	$0.02⅛
Trimmed arctics	*lb.*	.02 @	
Untrimmed artics	*lb.*	.01¼@	
Hard Rubber			
Battery jars, black compound	*lb.*	*.01 @	
glossy	*lb.*	.05 @	.06
Inner Tubes			
No. 1	*lb.*	*.03¼@	.04
Compounded	*lb.*	.02¾@	.03
Red	*lb.*	.03 @	
Mechanicals			
Black scrap, mixed	*lb.*	*.01½@	
Heels	*lb.*	*.02½@	.03
Horse-shoe pads	*lb.*	*.02½@	.03
Hose, air brake	*lb.*	*.01 @	.01½
regular	*lb.*	*.01 @	
Red scrap, mixed	*lb.*	*.07 @	.08
White scrap, mixed	*lb.*	*.07 @	.07½
Tires			
Pneumatic			
Auto peelings	*lb.*	*.007⅛@	
Bicycle	*lb.*	.01 @	.01½
Standard White auto	*lb.*	*.02½@	.02¾
Mixed auto	*lb.*	.00¾@	.01
Stripped, unguaranteed	*lb.*	*.01 @	.01½
Solid			
Carriage	*lb.*	*.02¼@	.02¼
Irony	*lb.*	@	
Truck, clean	*lb.*	*.01½@	.01½

*Nominal.

M. & A. M. A. TO EXHIBIT AT NATIONAL AUTOMOBILE SHOWS

The Motor and Accessory Manufacturers' Association announces the names of 125 representative manufacturers of units and equipment who will exhibit at the coming National Automobile Shows, to be held in New York and Chicago early next year. Of these manufacturers, eighty-two will exhibit in both shows, thirty-four in New York, and nine in Chicago.

The New York Show will be held at the Grand Central Palace, January 6 to 13, 1923, and the Chicago Show at the Coliseum, January 27 to February 3, 1923.

ARGHAN SAMPLES AND PRODUCTS EXHIBITED

Arghan fiber, which compares favorably with hemp and flax and is three times stronger than silk, is now being cultivated extensively in the Federated Malay States. The Arghan Co. has had so many requests for information and samples that it has made arrangements for exhibits in England. At the offices of the Malay States Information Agency, 88 Cannon street, E. C. 4, and of the Indian Trade Commission, Winchester House, Old Broad street, E. C. 2, both in London, samples of arghan fiber and a number of products manufactured from it are being displayed.

The Market for Cotton and Other Fabrics

New York

AMERICAN COTTON. The market has been adversely affected by conditions in the Near East. There has been little change in regard to crop outlook. Spot Middling Uplands stood at 20.45 cents on October 2, and advanced steadily during the month, being quoted at 24.10 cents on October 24.

Estimates place American consumption at 6,400,000 bales. Stocks of August 1 and indicated crop total about 12,500,000 bales, leaving for end-season stock and export about 6,000,000 bales. Domestic consumption of cotton is about on a level with the pre-war figures, while exports average for the past eight months only about 60 per cent of the 1913 movement, then 700,000 bales a month.

EGYPTIAN COTTON. The demand from abroad is satisfactory but restricted, pending solution of the political trouble in the Levant. The abolition of the cotton duty of seven cents in the United States remains without effect on the Egyptian market, prices declining on the news that English spinners are operating on short time.

On October 4 medium Sakels were offered c. i. f. Boston at 30½ cents and Medium Uppers at 25½ cents. These grades were 34 and 30 cents, respectively, on October 23. The advance which stopped business in this country has been sustained by heavy purchases of medium and low grade Sakels in England.

The average yield in Egypt this year is low and indicates a crop of about 4,400,000 cantars (99 pounds per cantar). The condition in the Delta is given at 77 per cent and in upper Egypt 84 per cent normal. Growers are making only one picking, which means elimination of most of the high grades.

SEA ISLANDS. Sea Islands have been neglected largely because of the poor character of the new crop.

ARIZONA COTTON. The removal of the 7-cent duty on imported stapled cottons failed to depress Pima cottons and the demand has been very large. Low grades are very scarce and practically exhausted from the old crop. Receipts thus far have shown this cotton to be the best crop which has been grown as regards character, grades and staple. The demand is so great that 60 per cent of the crop has been sold in seed cotton. Department of Agriculture estimates indicate that the bulk of this crop and the carry over from previous crops will be consumed or sold within ten months. These conditions exist in spite of the low priced offerings on Egyptian cottons. A demand is also being felt for this cotton in foreign markets and increased use abroad is confidently anticipated.

Cotton Fabrics

DRILLS, DUCKS AND OSNABURGS. Mills are practically sold over the next three months and many contracts run through to June. Prices have advanced under sharp demand and supplies are scarce in coarse constructions. Market is strong, based on contracts placed for the next six to eight months.

RAINCOAT FABRICS. Raincoat manufacturers are showing interest in new fabrics and designs. All old stocks have been unloaded and buyers are ready for new merchandise and willing to pay the advanced prices for attractive goods. Business in staples has been above expectations and there is a strong demand for spot goods to be rubberized with so-called "gas mask" coating.

SHEETINGS. The market is very active with strong advancing tendency in the prices of all fabrics. Buyers are inclined to place long contracts for future supplies.

TIRE FABRICS. The market has assumed great activity, owing to the increase in cotton prices. Buyers are realizing that fabric prices are destined to rise and are preparing to contract for next season's needs.

New York Quotations

October 25, 1922

Prices subject to change without notice

Burlaps			
40—7-ounce	100 yds.	@	
40—7½-ounce		$6.35 @	$6.45
36—8-ounce		@	
40—8-ounce		6.35 @	6.45
40—10-ounce		8.15 @	8.20
40—10½-ounce		8.15 @	8.25
Drills			
38-inch 2.00-yard		.21½ @	
40-inch 3.47-yard		.12¾ @	
52-inch 1.90-yard		.23¾ @	
60-inch 1.52-yard		.29¼ @	
Duck			
CARRIAGE CLOTH			
38-inch 2.00-yard enameling duck	yard	.22 @	
40-inch 1.47-yard		.29½ @	
72-inch 16.66 ounce		.49 @	
72-inch 17.21-ounce		.50½ @	
MECHANICAL			
Hose	pound	.43 @	
Belting		.42 @	
Osnaburgs			
40-inch 2.35-yard		.18¾ @	
40-inch 2.48-yard		.17¾ @	
37½-inch 2.42-yard		.17¾ @	
Hollands			
DULL FINISH			
Standard, 37-inch, white and colors		.18 @	
42-inch, white and colors		.22 @	
FLAT FINISH			
Imperial, 36-inch, white and colors		.14 @	
40-inch, white and colors		.17 @	
Raincoat Fabrics			
COTTON			
Bombazine 64 x 60	yard	.12½ @	
60 x 48		.11¾ @	
Cashmeres, cotton and wool, 36-inch, tan		.50 @	
Plaids 60 x 48		.12¾ @	
56 x 44		.12¼ @	
Surface prints 60 x 48		.13 @	
64 x 60		.14 @	
Sheetings, 40-inch			
48 x 48, 2.50-yard	yard	.15½ @	.15¾
48 x 48, 2.85-yard		.14 @	.14½
64 x 68, 3.15-yard		.14½ @	.14½
56 x 60, 3.60-yard		.12½ @	.13
48 x 44, 3.75-yard		.11 @	.11½
Silks			
Canton, 38-inch	yard	@	
Schappe, 36-inch		@	
Tire Fabrics			
BUILDING			
17½-ounce Sakellaridis, combed	pound	.75 @	
17½-ounce Egyptian, combed		.67 @	
17½-ounce Egyptian, carded		.61 @	
17¼-ounce Peeler, combed		.65 @	
17¼-ounce Peeler, carded		.56 @	
CORD			
15-ounce Egyptian, combed	pound	.70 @	
15-ounce Egyptian, carded		@	
15-ounce Peeler, carded		@	
BICYCLE			
8-ounce American	pound	@	
10-ounce American		@	
CHAFER			
9¼-ounce Egyptian, carded	pound	.68 @	
9¼-ounce Peeler, carded		.63 @	

The Market for Chemicals and Compounding Ingredients

New York

As a whole the market for standard rubber compounding ingredients shows good volume and activity of movement, reflecting corresponding conditions in the leading manufacturing lines of the industry. As yet the new tariff has not markedly affected prices.

ANILINE. Improvement in trade was noted early in the month with increased demand and firmer prices.

ANTIMONY SULPHIDES. Supplies are in fair volume. The market is firm and prices nominal.

BARYTES. This material is in active request. Early in the month shipping difficulty was experienced owing to the right of way given to coal over other commodities. Later in the month car shortage was a factor in curtailing shipments of barytes. There has been no advance in price due to the new tariff.

BENZOL. Coke ovens are not coming into production rapidly enough to meet the needs of the market for benzol. The gain in output has been scarcely sufficient to meet contract requirements, and market shortage is correspondingly acute.

BLANC FIXE. Material has been hard to secure for the same reasons as is effective with barytes, the source material. The result is a very firm market.

CARBON BISULPHIDE. Quiet conditions have prevailed all through the month.

CARBON BLACK. Ample supplies are ready for shipment at the producing centers. Lack of transportation facilities render it difficult to keep consumers supplied. Railroad service is gradually improving and deliveries will in time become normal. Prices are very firm. Blacks of all varieties are active..

CARBON TETRACHLORIDE. Seasonal conditions act to render current consumption rather slow and restricted.

CHINA CLAY. The price for imported clay, which is entering the country chiefly at Philadelphia, promptly advanced $1.25 per ton when the new tariff became effective. This change has not decreased sales, and consumption has become heavier in both domestic and imported grades.

DRY COLORS. In all sorts of dry colors business is reported active.

LITHARGE. A gradual improvement has been noted notwithstanding a slight advance for the material in casks.

LITHOPONE. It is not yet known whether the new tariff of 1¾ cents a pound will prove prohibitive to importations. There has been no change for domestic lithopone. Stocks are small and business active.

SOLVENT NAPHTHA. Production is less than average, and supplies inadequate for current needs.

SULPHUR. This is one of the steadiest of the market items whether in supply, consumption or price. Prices are unchanged.

SULPHUR CHLORIDE. Dull and seasonal.

TALC. Imported grades advanced with the tariff. Domestic and foreign are in very good request.

WHITING. There was a drop in price early in the month to $1 per 100 pounds. The full seasonal activity is noted.

ZINC OXIDE. Leaded zinc oxides have been reduced. There has been no advance in the pure oxide. The French process zinc is in good demand by the tire trade, considering approach of the usual seasonal decline in tire output.

Accelerators, Organic

Accelerene (f. o. b. English port)	lb.	13s.	@
Accelemal	lb.	$0.40	@
Adco	lb.	.60	@
Aldehyde ammonia crystals	lb.	.95	@
Aniline (f. o. b.) factory	lb.	.15	@ .19
Diphenyl guanidine	lb.	1.25	@ 1.40
Ethylidene aniline	lb.	.80	@ .90
Excellerex	lb.	.40	@ .45
Formaldehyde aniline	lb.	.52½	@
Hexamethylene tetramine	lb.	.95	@ .97½
Lead oleate (bbls.)	lb.	.14	@
Methylene aniline	lb.	.36	@ .40
Methylene paratoluidine	lb.	1.40	@
N. C. C.	lb.		@
No. 999	lb.	.14	@
Paradin	lb.	.38	@
Paraphenylene diamine	lb.	1.55	@ 1.57
Super-sulphur, No. 1	lb.	.50	@ .60
No. 2	lb.	.25	@ .30
Super-X	lb.	.50	@
Super-XX	lb.	.80	@
Thiocarbanilide	lb.	.28	@ .32
Vul-Ko-Cene	lb.	.35	@
XLO	lb.	1.05	@

Accelerators, Inorganic

Lime, flour, superfine	lb.	.02	@ .02½
Litharge, domestic	lb.	.08½	@
imported	lb.	*.17	@
Magnesia, carbonate, light	lb.	.07¼	@ .09½
calcined, light (bbls.)	lb.	.22	@ .24
calcined, ex. light (bbls.)	lb.	.45	@
calcined, md. light (bbls.)	lb.	.15	@
calcined, heavy (bbls.)	lb.	.05	@ .05½
oxide	lb.	.05	@ .05½

Acids

Acetic 28% (bbls.)	cwt.	2.92½	@ 3.67½
glacial, 99%	cwt.	11.16	@11.91
Cresylic (97% straw color)	gal.	.60	@ .62
(95 dark)	gal.	.55	@ .57
Muriatic, 20 degrees	cwt.	1.10	@ 1.25
Nitric, 36 degrees	cwt.	4.75	@ 5.25
Sulphuric, 66 degrees	ton	14.00	@16.00

Alkalies

Caustic soda	cwt.	3.20	@ 3.40
Soda ash, 58% (bbls.)	cwt.	1.95	@ 2.30

*Nominal.

New York Quotations

October 25, 1922

Prices subject to new tariff revision

Colors

BLACK

Bone, powdered	lb.	$0.05½	@$0.07½
Carbon black	lb.	.16	@ .24
pressed	lb.	.17	@
Dipped goods	lb.		@
Drop	lb.	.07½	@ .16
Hyposulphite of lead	lb.		@
Iron oxide	lb.	.04½	@ .16
Ivory black	lb.	.15	@ .45
Lampblack	lb.	.12	@ .40
Micronex	lb.		@
Gritless black	lb.	.40	@

BLUE

Dipped goods	lb.		@
Prussian	lb.	.55	@ .60
Gritless blue	lb.	3.50	@
Ultramarine	lb.	.10	@ .35

BROWN

Iron oxide	lb.	.05	@ .06
Sienna, Italian	lb.	.04¼	@ .05¼
Umber, Turkey	lb.	.05	@ .06
Vandyke	lb.	.06	@ .07

GREEN

Chrome, light	lb.	.30	@ .32
medium	lb.	.35	@ .36
dark	lb.	.36	@ .45
commercial	lb.	.12	@
tile	lb.	.11	@ .13
Guignet	lb.		@
Dipped goods	lb.		@
Oxide of chromium	lb.	.55	@
Gritless green	lb.	3.50	@

RED

Antimony, crimson	lb.	.35	@ .42
crimson, 15/17% free	lb.		@
crimson, R.M.P. No. 3	lb.	.50	@
crimson F	lb.	.35	@
Antimony, golden	lb.	.18	@ .27
golden R.M.P. No. 7	lb.	.21	@
golden, 15/17% free	lb.		@
golden, No. 1	lb.	.30	@
golden, No. 2	lb.	.25	@
7-A	lb.	.35	@
vermilion 15/17% F. S.	lb.	.55	@
vermilion 5% F. S.	lb.	.65	@
red sulphuret	lb.	.20	@
Arsenic sulphide, red	lb	.12½	@ .13
lemon	lb.		@
orange	lb.		@
Cadmium sulphide	lb.		@
cold cure	lb.		@
hot cure	lb.		@
Dipped goods red	lb.		@
purple	lb.		@
orange	lb.		@
Indian	lb.	.08	@ .12
Indian maroon, English	lb.	.12	@ .15
Iron oxide, reduced	lb.	.12	@
pure bright	lb.	.14	@
Maroon oxide	lb.	.08	@ .12
Red oxide, crimson	lb.	.05½	@ .06
English	lb.	.12	@
Spanish	lb.	.03	@ .05
Oximony	lb.	.16	@
Para toner	lb.	1.00	@ 1.10
Gritless red (four shades)	lb.	3.50	@
purple	lb.	2.50	@
Spanish natural	lb.	.03½	@ .04½
Toluidine toner	lb.	2.25	@ 2.50
Venetian	lb.	.03½	@ .06
Vermilion, American	lb.	.25	@ .30
English quicksilver	lb.	1.35	@ 1.45

WHITE

Albalith	lb.	.06	@ .06½
Aluminum bronze	lb.	.55	@ .60
Lithopone, domestic	lb.	.06	@ .06½
Zinc oxide:			
American Horse Head Special	lb.	.07½	@ .08
XX red	lb.	.07	@ .07½

Chemical Market—*Continued*

New York Quotations

October 25, 1922

Prices subject to new tariff revision

Colors

WHITE—*Continued*			
French process, Florence White seal	lb.	$0.11	@$0.11¼
Green seal	lb.	.09¾	@ .10¼
Red Seal	lb.	.08¾	@ .09¼
Azo (factory):			
ZZZ (lead free)	lb.	.07	@ .07½
ZZ (—5% leaded)	lb.	.06¼	@ .06¾
Z (8-10% leaded)	lb.	.06	@ .06½
Zinc sulphide	lb.		@
YELLOW			
Arsenic, yellow	lb.	.87	@ 1.00
Cadmium, sulphide, light	lb.		@
Chrome, light and med.	lb.	.17	@
Dipped goods	lb.		@
India rubber	lb.	87½	@
Ochre, domestic	lb.	.03	@ .03¼
imported	lb.	.03½	@ .03¾
Gritless yellow	lb.	3.50	@

Compounding Ingredients

Aluminum flake (carloads)	ton	25.00	@30.00
hydrate, light	lb.	.17	@ .18
Ammonia carbonate	lb.	.09½	@ .10¼
Asbestine	ton	20.00	@25.00
Aluminum silicate	ton	22.00	@25.00
Barium, carbonate, precip.	ton	75.00	@80.00
dust	ton	100.00	@
Barytes, pure white C. L.	ton	23.90	@
off color (carloads)	ton	20.00	@
uniform floated (carloads)	ton	23.90	@
Basofor	lb.	.04¾	@
Blanc fixe	lb.	.04¼	@ .04½
Carrara filler (factory)	lb.	.01½	@
Chalk, precip. extra light	lb.	.03½	@ .04¼
heavy (f.o.b. factory)	lb.	.02½	@ .03¼
China clay, Dixie	ton	22.00	@32.00
Blue ribbon (Carloads)	ton	14.00	@
Blue Ridge	ton	22.00	@32.00
Cotton flock, black	lb.	.12½	@ .13
light-colored	lb.	.13	@ .14
white	lb.	.15	@ .20
Cotton linters clean mill-run	lb.	.05	@
Fossil flour (powdered)	ton	60.00	@
(bolted)	ton	60.00	@
Glue, high grade	lb.	.30	@ .40
medium	lb.	.20	@ .26
low grade	lb.	.16	@ .19
Graphite, flake	lb.	.05	@
amorphous	lb.	.05	@
Infusorial earth (powd.)	ton	60.00	@
(bolted)	ton	65.00	@
Liquid rubber	lb.	.15	@
Mica, powdered	lb.	.15	@
Pumice stone, powdered	lb.	.03	@ .05
Rotten st., powd. (bbls.)	lb.	.02½	@ 04½
Silica, gold bond (factory)	ton	31.00	@
silver bond (factory)	ton	25.00	@
Soap bark, cut	lb.	.08½	@ .10
Soapstone, powdered, gray	ton	12.00	@
Starch, powd. corn (bags)	cwt.	2.72	@ 2.82
(bbls.)	cwt.	3.00	@ 3.10
Talc, soapstone	ton	20.00	@25.00
Terra blanche	ton	25.00	@27.00
Tripoli flour, cream or rose	ton		@
white (factory)	ton		@
Tyre-lith	ton	$85.00	@$90.00
Whiting, Alba	cwt.		@
chalk	ton		@
commercial	cwt.	1.00	@ 1.15
Danish (factory)	ton	20.00	@
English cliffstone	cwt.	1.50	@ 2.00
gilders (bolted)	cwt.	1.15	@
K. T.	ton	14.00	@
Paris, white, American	cwt.	1.25	@ 1.35
Perfection	ton	22.00	@25.00
Plymouth	ton	16.00	@18.00
Quaker	ton	13.00	@15.00
Superfine	ton		@
Wood pulp, XXX	ton	32.00	@
X (f.o.b. factory)	ton	25.00	@

Mineral Rubber

Gilsonite	ton	65.00	@
Genasco (factory)	ton	60.00	@62.00
Hard hydrocarbon	ton	32.00	@42.00
Soft hydrocarbon	ton	30.00	@35.00
320/340 M. P. hydrocarbon	ton	50.00	@65.00
300/310 M. P. hydrocarbon	ton	40,00	@95.00
Pioneer, M. R., solid (fac.)	ton	42.00	@44.00
M. R. granular	ton	52.00	@54.00
Robertson, M. R., solid	ton	35.00	@75.00
M. R. granular (factory)	ton	54.50	@72.50
Rubrax (factory)	ton	60.00	@
States "A"	ton		@
No. 1	ton		@
Synpro, gran. M. R. (fac.)	ton	54.50	@69.50

Oils

Avoilas compound	lb.	.14	@
Castor, No. 1, U. S. P.	lb.	.13	@
No. 3, U. S. P.	lb.	.12½	@
Corn	lb.	.11	@
Cotton	lb.	.11½	@
Glycerine	lb.	.18½	@ .19
Halowax (500-lb. drums)	lb.		@
Linseed, raw	lb.	.12½	@
Palm lagos	lb	.06¾	@ .07
Palm, niger	lb.	.08	@
Peanut	lb.	.11	@
Petrolatum, standard	lb.	.05	@ .08
Petrolatum, sticky	lb.	.08	@ .10
Pine, steam distilled	gal.	.85	@ .88
Rapeseed, refined	gal.	.85	@
blown	gal.	.90	@ .95
Rosin	gal.	.44	@ .53
Synpro	gal.	.40	@ .70
Soya bean	lb.	.11	@
Tar	gal.	.25	@ .26

Resins and Pitches

Cumar resin hard	lb.	$0.09	@$0.10
soft	lb.	.09	@ .10
Tar, retort	bbl.	10.00	@11.00
kiln	bbl.	11.00	@12.50
Pitch, Burgundy	lb.	.05	@
coal tar	lb.	.01½	@
hardwood	lb.	.02½	@
pine tar	lb.	.03½	@
ponto	lb.	.06	@
Rosin, K (bbl.)	280 lbs.	7.75	@
strained (bbls.)	280 lbs.	7.50	@
Shellac, fine orange	lb.	.90	@

Solvents

Acetone (98.99% drums [6.62 lbs. per gal.])	lb.	.20	@ .23
Benzol (90%, drums [7.21 lbs. per gal.])	gal.	.27	@ .32
pure (drums)	gal.	.30	@ .40
Carbon bisulphide (dms. [10.81 lbs. per gal.])	lb.	.06½	@ .07½
tetrachloride (drums, [13.28 lbs. per gal.])	lb.	.09½	@ .11
Motor gasoline (steel bbls.)	gal.	.24	@
Naphtha, V. M. & P.	gal.	.23	@
solvent (drums extra)	gal.	.23	@ .25
Paracymene (factory)	lb.		@
Toluol, pure (7.21 lbs. per gal.)	gal.		@
Turpentine, spirits	gal.	1.68	@
wood, steam distilled	gal.	1.58	@

Substitutes

Black	lb.	.07	@ .13
Brown	lb.	.10	@ .14
White	lb.	.08	@ .16
Brown factice	lb.	.07	@ .15½
White factice	lb.	.08½	@ .15½

Vulcanizing Ingredients

Black hypo	lb.	.28	@
Sulphur chloride (drums)	lb.	.08	@
(jugs)	lb.	.13½	@
Sulphur, Bergenport brand, 100% pure (bbls.)	cwt.	2.55	@ 2.90
(bags)	cwt.	2.30	@ 2.65
Sulphur flour (bbls.)	cwt.	2.60	@ 3.15
(bags)	cwt.	2.35	@ 2.90
Superfine 100% pure	cwt.	2.60	@ 3.15

(See also Colors—Antimony)

Waxes

Wax, beeswax, white, com.	lb.	.45	@
ceresine, white	lb.	.12	@
carnauba	lb.	.20	@
montan	lb.	.03½	@ .04
ozokerite, black	lb.	.18	@
green	lb.	.25	@ .26
paraffine	b.	.02¾	@ .04⅞
sweet wax	lb.	.12	@

*Nominal.

ROBERTSON APPOINTS JOHNS-MANVILLE SELLING AGENT

The H. H. Robertson Co., First National Bank Building, Pittsburgh, Pennsylvania, has recently appointed Johns-Manville, Inc., joint selling agent in the handling of corrugated metal roofing and siding protected with asbestos and asphalt, a material recognized as standard roofing and siding for skeleton frame structures. In the fabricating of the finished product the Johns-Manville asbestos saturated felts will be used, such material having been found particularly suitable for unprotected metal or perishable roofing material.

RUBBER HEELS ON LEATHER FOOTWEAR

Probably 90 per cent of the boot and shoe manufacturers in this country are now equipping at least a part of their output with rubber heels. During 1919, 138,468,769 pairs of rubber heels were produced, while 9,777,085 pairs of rubber and composition fiber soles were manufactured.

It is a conservative estimate that in 1919, 30 per cent of the leather shoes made in the United States left the factory equipped with rubber heels, while a census for 1921 would undoubtedly place the figure much higher, at 50, or even as high as 75 per cent. While the popularity of the rubber heel is steadily increasing, it has been found that men's shoes are more often equipped with these convenient articles than women's. It has been estimated that 75 per cent of the rubber heels manufactured are for men's shoes.—*Commerce Reports.*

Exhibitions and Conventions

Exhibitions

Nov. 13-18—Chicago, Annual Show and Meeting of the Automotive Equipment Association.
Dec. 3-9—New York, Eighteenth Annual Automobile Salon, Commodore Hotel.
Jan. 6-13—New York, National Automobile Show, Grand Central Palace.
Jan. 27-Feb. 3—Chicago, Annual Automobile Show, Coliseum, and First Regiment Armory.

Conventions

Nov. 14-16—Milwaukee, Wis., National Tire Dealers' Association.
Jan. 9-12—New York, Society of Automotive Engineers' Annual Meeting.
Jan. 15-19—Chicago, Thirteenth American Good Roads Congress and Fourteenth National Good Roads Show.

Foreign Exhibitions

Sept. 7-March 31—Rio de Janeiro, Brazil, Brazilian Centennial Exposition.
Nov. 3-11—London (Olympia), Automobile Show.
Nov. 9-19—Buenos Aires, Argentina, Annual Exhibition, Automovil Club Argentino.
Nov. 29-Dec. 4—London (Olympia), Cycle and Motorcycle Show. British Cycle Motors, The Tower, Warwick Road, Coventry.
Dec. 15-Jan. 2—Paris, International Aero Exposition, Grand Palais.
Jan. 13-24—Brussels, Sixteenth International Automobile and Cycle Exposition, Palais de la Cinquantenaire.
May-July, 1923—Gothenburg, Sweden, International Automobile Exhibition, sponsored by Royal Automobile Club of Sweden.

INDIA RUBBER WORLD
FOUNDED 1889
CAOUTCHOUC
GUTTA-PERCHA
Reg U.S. Pat Off.
Reg United Kingdom.

Vol. 67 NOVEMBER 1, 1922 No. 2

TABLE OF CONTENTS